The Saskatchewan Beef Industry: Constraints and Opportunities for Growth

K.A. ROSAASEN,
ASSOCIATE PROFESSOR,
AGRICULTURAL ECONOMICS,
UNIVERSITY OF SASKATCHEWAN

and

ANDREW SCHMITZ,
PROFESSOR,
AGRICULTURAL ECONOMICS,
UNIVERSITY OF BERKELEY, CALIFORNIA

TECHNICAL BULLETIN
BL: 84-02

MARCH, 1984

Technical Bulletin

BL: 84-02

THE SASKATCHEWAN BEEF INDUSTRY:

CONSTRAINTS AND OPPORTUNITIES FOR GROWTH

K.A. Rosaasen,
Associate Professor,
Agricultural Economics, University of Saskatchewan

and

Andrew Schmitz,
Professor,
Agricultural Economics, University of Berkeley, California

March, 1984

PREFACE

In 1980, the Saskatchewan beef industry generated more than 15 percent of the province's farm cash receipts. This is important in absolute terms even though on a relative basis it is second to wheat sales (1980 wheat sales made up 63 percent of the province's farm cash receipts). There are at least three disturbing aspects about the Saskatchewan beef industry: (1) the steady reduction in the numbers of beef breeding cows since 1975, (2) the large percentage of feeder cattle which leave Saskatchewan to be fed in Alberta and Ontario, and (3) the large numbers of cattle raised and fed in Saskatchewan which are slaughtered outside the province.

The purpose of this study is to provide an economic assessment of the Saskatchewan cattle industry by viewing the industry as an integrated system starting with the cow-calf producer and ending with the consumer. The key components which shaped the current structure of Saskatchewan's cattle industry are identified, and a list of policy options to consider in order to make the beef sector a growth industry are presented.

ACKNOWLEDGEMENTS

The authors thank Professors R.C. Nicholson and W.J. Brown of the University of Saskatchewan for their helpful comments and suggestions in reviewing an earlier draft of the manuscript. The authors are also grateful to T.G. Scott, D.L. Maley, and J. Zepp of Saskatchewan Agriculture and B.L. Ward of Agriculture Canada for their comments, to Clare M. Fairbairn for editorial services, John Sproule for assisting with the figures, and to Miss D. Stefaniuk for typing.

This study was funded by Saskatchewan Agriculture during 1982-83. The authors would like to thank the Department for consenting to publish the report submitted in July, 1983, in its entirety and for defraying a major portion of the publication costs.

TABLE OF CONTENTS

		Page
PREFACE		i
ACKNOWLEDGEMENTS		ii
TABLE OF CONTENTS		iii
LIST OF TABLES		iv
LIST OF FIGURES		vi
A.	AN OVERVIEW OF SASKATCHEWAN'S LIVESTOCK INDUSTRY	1
	1. Livestock Production on Saskatchewan Farms	1
	2. Saskatchewan's Share of Canadian Livestock and Meat System Relative to the Canadian Production	4
	3. The Saskatchewan Cow-Calf Sector	4
	4. The Saskatchewan Fed Cattle Sector	6
	5. The Saskatchewan Slaughter Cattle Sector	9
	6. Cattle Prices	9
	7. Provincial Distribution of Cattle in Saskatchewan	11
B.	THE EVOLUTION OF THE SASKATCHEWAN BEEF INDUSTRY	18
	1. Introduction	18
	2. The Production Sector: Pre-1940	18
	3. The Marketing and Trade Sector	22
	4. Differing Regulations—Some Underlying Reasons	26
	5. Regulations and the Meat-Grain Interface in Western Canada: After 1940	29
	6. Regulations and Economic Forces: The Results	34
C.	THE COW-CALF AND FEEDING INDUSTRY	38
	1. The Cow-Calf Industry	38
	2. The Use of Public Lands	40
	3. Cattle Feeding	45
	4. Cattle Finishing	49
	5. The Alberta Feeding Industry	63
D.	THE MEAT PACKING INDUSTRY IN SASKATCHEWAN	74
	1. Historical Perspective	74
	2. Slaughter Capacity	77
	3. Additional Packing Throughput for Saskatchewan	80
	4. Packing Capacity as a Growth Constraint	85
E.	THE BEEF-GRAIN SECTOR—THE POLITICAL ECONOMIC ENVIRONMENT	90
	1. Inflation, Interest Rates and Taxation	90
	2. Competition for Resources	102
	3. Current and Recent Programs: Some Unintended Consequences	115
F.	FUTURE DIRECTIONS	132
	1. Summary	132
	2. Policy Options	133

LIST OF TABLES

Table		Page
1	Saskatchewan Farm Cash Receipts, 1971-81	2
2	Average Livestock Prices, Saskatoon, 1965-81	2
3	Saskatchewan Farms Reporting Livestock, Classified by Numbers Reported, 1976-81	3
4	Total Cattle and Calves on Farms, Canada and Regions, 1972-81	5
5	Total Hogs on Farms, Canada and Regions, 1971-81	5
6	Beef Cows and Calves on Saskatchewan and Canadian Farms, 1971-81	7
7	Destination of Saskatchewan Feeder Cattle Marketings, 1976-81	7
8	Saskatchewan Cattle Marketed for Slaughter, 1976-81	8
9	Destination of Saskatchewan Slaughter Cattle Marketed, 1976-82	10
10	Cattle Prices, Saskatoon, 1976-81	10
11	Average Number of all Cattle on Farms Reporting Cattle; 1961, 1971 and 1976	38
12	Beef Cows on Saskatchewan Farms, By Crop Districts, 1976-80	39
13	Classification of Public Lands in Saskatchewan, 1977-81	40
14	Cattle on Public Lands, Saskatchewan, 1977-81	41
15	Cow-Calf Production Costs Feeder Price and Net Margin: At Saskatoon, 1970-81	43
16	Slaughter and Feeder Steer Calf Average Prices, Costs of Gain, Break-even Price and Net Margin; at Saskatoon, 1975-81	46
17	Slaughter Steer Prices, Cost of Gain, Break-Even Buying Feeder Calf Prices and Feeder Steer Calf Prices; at Saskatoon, 1975-81	48
18	Corn Prices Related to Cattle and Calves on Feed, United States, 1970-79	48
19	Saskatchewan Barley Prices and U.S. Corn Prices (monthly), 1976-80	50
20	Coefficient of Variation: U.S. Corn Prices and Saskatchewan Barley Prices	51

List of Tables continued

Table		Page
21	Total Slaughter Cattle Marketings by Province of Origin, 1971-80	52
22	Categories of Feedlot Size, Saskatchewan, 1978	52
23	Distribution of Beef Cows and Steers in Alberta and Saskatchewan	53
24	Number of Feedlots Finishing Cattle in the 23 Major Cattle Feeding States, 1970-77	56
25	Feedlot Operators, and Capacities at Selected Locations in Saskatchewan and Alberta, 1970-77	58
26	Number of Feedlots that Finished Cattle in New Mexico, Capacity, 1971-77	59
27	New Mexico Cattle Feedlots, by Type and Capacity, 1977	59
28	Alberta Steer and Heifer Slaughter, Census Division	64
29	Average Irrigated and Dryland Crop Yields, Southern Alberta, 1981	72
30	Volume of Meat Packing Plants in Saskatchewan, 1961	76
31	Destination of Saskatchewan Slaughter Cattle	79
32	Saskatchewan Beef Cow Herd and Federally Inspected Slaughter	79
33	Excess Capacity in Beef Kill in Inspected Plants in Saskatchewan	80
34	Alberta Plant Locations and Capacity	81
35	Potential Economic Benefits from New Meat Packing Facility	83
36	Destinations of Saskatchewan Feeder Cattle, 1976-82	88
37	Income Taxes Paid by Saskatchewan Farmers, 1976-80	96
38	Net Federal and Provincial Income Tax Paid by Farmers by Province, 1974-79	101
39	Canadian Wheat Board Export Asking Prices	124
40	Estimated Interest Foregone by Western Grain Producer Through Grain Deferments	127

LIST OF FIGURES

Figure		Page
1	Cattle on Saskatchewan Farms, by Census Division, 1981	12
2	Beef Cows on Saskatchewan Farms, by Census Division, 1981 ..	13
3	Cattle on Feed on Saskatchewan Farms, by Census Division, 1981	15
4	Heifers and Steers Raised for Slaughter on Saskatchewan Farms, by Census Division, 1981	17
5	Net Feeder Margins, Slaughter Steer Prices	47
6	Capacity of Saskatchewan Feedlots	54
7	Level of Feedlot Utilization	55
8	Short Run Cost Curves for Feeding Cattle	60
9	Economies of Scale Curve for Non-Feed Costs of Operating Model Feedlots	61
10	Location of Major Irrigation Districts in Alberta	65
11	Alberta Principal Field Crop Production	69
12	Alberta Primary Net Shipments of Grain	70
13	Saskatchewan Production of Principal Field Crops	71
14	Income Tax Versus Property Tax	92
15	Percentage of Saskatchewan Farmers Paying Income Tax	93
16	Income Tax Paid by Saskatchewan Farmers	94
17	Argentine Wheat Production and Beginning Stocks.....	105
18	Australian Wheat Production and Beginning Stocks.....	106
19	U.S. Wheat Production and Beginning Stocks.....	107
20	Canadian Wheat Production and Beginning Stocks.....	108
21	Statutory Rate Zones to West Coast Ports	124

A. AN OVERVIEW OF SASKATCHEWAN'S LIVESTOCK INDUSTRY

1. Livestock Production on Saskatchewan Farms

The livestock sector of Saskatchewan agriculture has gone from a state of high and increasing importance to one of low and decreasing importance within the past decade. In 1971, 26 percent of farm cash receipts were from cattle, hogs and sheep; by 1981 this figure had dropped to 13 percent (Table 1). The grains industry, which faced problems of over-supply and low prices in 1970 and 1971, rebounded in the period 1973 through 1975 with record high prices. Cattle prices peaked in 1973 and then fell 25 percent by 1975 (Table 2).

One measure of the importance of livestock to Saskatchewan agriculture is the proportion of farms which maintain livestock. In 1976, 60 percent of Saskatchewan's 70,958 farms were involved in cattle production. However, by 1981 farm numbers had fallen to 67,318, of which only 49 percent were involved in cattle production. The distribution of cattle numbers by herd size changed little during the 1976 to 1981 period, indicating that the move toward more specialized livestock production that started in the 1960s stagnated in the 1970s (Table 3).

While the reduction in the number of farms involved in cattle production is significant, it does not compare to the reduction in the number of farms involved in hog production.[1] In 1971, 26,075 farms

---

[1] This study was initially intended as an examination of all segments of the livestock and packing industry, including hogs and sheep. However, due to the breadth of the subject, the study's focus was narrowed to the beef industry, reserving the hog industry for a separate analysis (though many of this study's policy suggestions might be applicable to the hog industry as well).

Table 1: Saskatchewan Farm Cash Receipts, 1971-81

	Cattle and Calves	Hogs	Sheep and Lambs	Total Livestock	Total Livestock & Products	Total Farm Receipts	Total Livestock as a % of Total Farm Receipts
	thousand dollars						
1971	180,378	53,749	1,206	235,333	276,844	903,909	26.04
1972	223,321	67,158	1,012	291,491	337,670	1,202,828	24.23
1973	268,768	98,242	1,214	368,224	423,994	1,466,292	25.11
1974	285,189	77,144	1,629	363,962	427,976	2,039,168	17.85
1975	311,581	64,782	1,961	378,324	442,076	2,468,996	15.32
1976	328,515	56,385	2,034	386,934	456,168	2,291,177	16.89
1977	339,172	51,374	1,132	391,678	465,736	2,140,948	18.29
1978	463,388	67,987	1,880	533,255	617,025	2,471,902	21.57
1979	528,053	74,768	1,894	604,715	697,523	2,918,439	20.72
1980	529,039	75,438	2,318	606,795	705,362	3,218,562	18.85
1981	442,241	78,266	2,629	523,136	638,663	3,908,310	13.89

Source: Statistics Canada, Farm Cash Receipts, catalogue no. 21-001, (Ottawa: various issues).

Table 2: Average Livestock Prices, Saskatoon, 1965-81

	Cattle	Calves	Hogs	Hog/Barley Ratio
	dollars per hundredweight			
1965	17.80	19.45	29.20	19.1
1966	20.80	24.10	32.45	20.3
1967	22.45	25.60	26.65	17.5
1968	22.65	25.90	27.15	19.9
1969	26.65	32.75	33.85	28.2
1970	27.70	34.45	27.15	21.8
1971	28.75	35.00	21.75	16.7
1972	31.99	40.36	32.78	24.1
1973	41.45	51.31	48.49	21.5
1974	36.80	36.68	44.70	13.2
1975	30.06	25.89	63.86	18.9
1976	29.17	28.65	59.35	20.1
1977	31.39	33.60	57.04	22.6
1978	52.30	66.00	68.27	25.0
1979	72.03	97.35	64.29	20.4
1980	68.81	82.68	56.36	15.6
1981	64.63	82.53	67.02	

Source: Saskatchewan Agriculture, Agricultural Statistics 1981 (Regina: 1982).

Table 3: Saskatchewan Farms Reporting Livestock Classified by Numbers Reported, 1976 and 1981

Item	1976 Number of Farms	1976 % of Farms	1981 Number of Farms	1981 % of Farms	Percent Change + Increase - Decrease
CATTLE:					
Farms reporting	42,348	100.0	32,805	100.0	-22.5
1 - 2 animals	871	2.1	844	2.6	-3.1
3 - 7 "	2,688	6.3	2,441	7.4	+9.2
8 - 12 "	2,461	5.8	2,124	6.5	-13.7
13 - 17 "	2,181	5.2	1,793	5.7	-17.8
18 - 32 "	6,735	15.9	4,988	15.2	-25.9
33 - 47 "	5,412	12.8	4,202	12.8	-22.4
48 - 62 "	4,922	11.6	3,573	10.9	-27.4
63 - 77 "	3,616	8.5	2,815	8.6	-22.2
78 - 122 "	6,840	16.2	4,947	15.1	-27.7
123 - 177 "	3,363	7.9	2,513	7.7	-25.3
178 - 272 "	2,006	4.7	1,507	4.6	-24.9
273 - 527 "	990	2.3	819	2.5	-17.3
528 animals and over	263	0.6	239	0.7	-9.1
PIGS:					
Farms reporting	12,246	100.0	9,177	100.0	-25.1
1 - 17 pigs	8,136	66.4	5,585	60.9	-31.4
18 - 32 "	1,449	11.8	1,033	11.3	-28.7
33 - 47 "	642	5.2	519	5.7	-19.2
48 - 62 "	473	3.8	348	3.8	-26.4
63 - 77 "	258	2.1	248	2.7	-3.9
78 - 122 "	451	3.7	406	4.4	-10.0
123 - 177 "	310	2.5	297	3.2	-4.2
178 - 272 "	228	1.9	276	3.0	+21.1
273 - 527 "	185	1.5	283	3.1	53.0
528 - 872 "	60	0.5	102	1.1	+70.0
873 - 1,127 "	17	0.1	16	0.1	-5.9
1,128 pigs and over	37	0.3	64	0.7	+73.0

Source: Statistics Canada, 1981 Census of Canada, Agriculture, Saskatchewan, catalogue no. 96-909 (Ottawa: 1982).

produced hogs; by 1981 this number dropped to 9,177—just 35 percent of the 1971 figure. During the 1970s, there was a move to more specialized hog production. In 1976 only 2.4 percent of the farms reported more than 273 hogs, while in 1981, 5.1 percent of the farms reported more than 273 hogs (Table 3).

2. Saskatchewan's Share of Canadian Livestock and Meat Production

The total number of cattle and calves on Saskatchewan farms decreased from 2,795,000 in 1976 to 2,095,000 in 1981, a reduction of 25.0 percent. This major reduction in the number of cattle and calves on Saskatchewan farms should be considered in relation to an 11.2 percent reduction at the national level, from 14,048,000 in 1976 to 12,468,000 in 1981. Thus, while the total number of cattle and calves in Saskatchewan decreased considerably in that period, Saskatchewan's share of Canada's cattle on farms decreased by a lesser amount—from 19.9 percent to 16.8 percent, or 3.1 percent (Table 4).

From 1971 to 1981, the number of hogs on farms in Saskatchewan decreased 43 percent (Table 5), while the Saskatchewan share of hogs on Canadian farms decreased from 14.3 to 6.5 percent. This extreme change in the number of hogs on Saskatchewan farms in the past decade is characteristic of changes in the hog situation in Saskatchewan over the last 30 years.

3. The Saskatchewan Cow-Calf Sector

The cow-calf sector has been cyclical (in terms of volume) in the past decade, the cycle coinciding very closely with the nation-wide situation. The number of beef cows on Saskatchewan farms reached a

Table 4: Total Cattle and Calves on Farms, Canada and Regions, 1972-81

	Saskatchewan		Prairies		Ontario		Canada	
	Number (000's)	% of Total	Number (000's)	% of Total	Number (000's)	% of Total	Number (000's)	% of Total
1972 Dec. 1	2,451	19.9	7,255	58.9	3,159	25.6	12,324	100
1974 Jan. 1	2,627	19.5	7,736	57.4	3,245	24.1	13,481	100
1975 Jan. 1	2,787	19.5	8,283	58.0	3,336	23.4	14,278	100
1976 Jan. 1	2,795	19.9	8,215	58.5	3,252	23.2	14,048	100
1977 Jan. 1	2,645	19.3	7,981	58.2	3,212	23.4	13,710	100
1978 Jan. 1	2,333	18.1	7,391	57.4	3,005	23.4	12,870	100
1979 Jan. 1	2,173	17.6	6,986	56.7	2,920	23.7	12,328	100
1980 Jan. 1	2,167	17.5	6,962	56.1	2,940	23.7	12,403	100
1981 Jan. 1	2,095	16.8	6,850	54.9	3,030	24.3	12,468	100

Source: Statistics Canada, Livestock and Animal Products Statistics, catalogue no. 23-203 (Ottawa: various issues).

Table 5: Total Hogs on Farms, Canada and Regions, 1971-81

	Saskatchewan		Prairies		Ontario		Canada	
	Number (000's)	% of Total	Number (000's)	% of Total	Number (000's)	% of Total	Number (000's)	% of Total
1971 Dec. 1	1,090	14.3	3,772	49.5	2,231	29.3	7,623	100
1972 Dec. 1	955	13.8	3,400	49.0	2,053	30.0	6,944	100
1974 Jan. 1	915	13.1	3,280	46.9	2,200	31.5	6,991	100
1975 Jan. 1	660	11.2	2,490	42.2	1,930	32.7	5,895	100
1976 Jan. 1	541	10.0	2,074	38.3	1,920	35.5	5,409	100
1977 Jan. 1	532	9.5	2,107	37.7	2,020	36.2	5,587	100
1978 Jan. 1	515	7.7	2,185	32.8	2,210	33.2	6,653	100
1979 Jan. 1	565	7.0	2,410	29.8	2,800	34.7	8,074	100
1980 Jan. 1	660	6.8	2,815	29.1	3,200	33.0	9,688	100
1981 Jan. 1	625	6.5	2,731	28.6	3,155	33.0	9,544	100

Source: Statistics Canada, Livestock and Animal Products Statistics, catalogue no. 23-203 (Ottawa: various issues).

maximum in 1975 at 1,248,000, coinciding with the Canadian maximum that year of 4,492,000. Similarly, the maximum number of calves on Saskatchewan farms (960,000) was reached in 1976, the same year as the Canadian maximum (4,000,000) was attained (Table 6).[2] On January 1, 1981, there were only 970,000 beef cows and 663,000 calves on Saskatchewan farms. In 1981, 26.3 percent of Canadian beef cows and 18 percent of Canadian calves were in Saskatchewan--figures second only to Alberta, which had 38.3 percent of the nations' beef cows and 33.4 percent of the calves that year.

4. The Saskatchewan Fed Cattle Sector

Of the 706,160 feeders marketed in Saskatchewan in 1981, only 219,880 (31 percent) were destined for points within the province. Feeders flow out of Saskatchewan to points across Canada, particularly Alberta and Ontario, and to American points. In every year since 1977, more of the feeders marketed were destined for points in Ontario than for points in Saskatchewan (Table 7).

The number of Saskatchewan cattle marketed for slaughter is dependent both on the number of feeder cattle which stay in the province and on the number of cows and bulls culled. Table 8 separates slaughter cattle into bulls, cows, steers, heifers and calves and reports the amounts of each marketed from 1976 to 1981. In that period, total slaughter cattle marketings fell 43.3 percent from

---

[2] The number of beef cows does not completely account for the number of calves, as dairy cows also produce calves. The number of dairy-produced calves per year is relatively low and constant in Saskatchewan, so the fluctuation in calf numbers is due mostly to beef production.

Table 6: Beef Cows and Calves on Saskatchewan and Canadian Farms, 1971-81

		Saskatchewan		Canada	
		Beef Cows	Calves	Beef Cows	Calves
		- - - - - - thousands of head - - - - - -			
1971	Dec. 1	1,016	820	3,454	3,667
1972	Dec. 1	1,090	835	3,766	3,806
1974	Jan. 1	1,190	870	4,152	3,993
1975	Jan. 1	1,248	940	4,492	4,212
1976	Jan. 1	1,215	960	4,401	4,000
1977	Jan. 1	1,160	890	4,243	3,923
1978	Jan. 1	1,070	770	3,949	3,750
1979	Jan. 1	1,013	695	3,740	3,554
1980	Jan. 1	985	690	3,623	3,598
1981	Jan. 1	970	663	3,685	3,678

Source: Statistics Canada, Livestock and Animal Products Statistics, 1981, catalogue no. 23-203.

Table 7: Destination of Saskatchewan Feeder Cattle Marketings, 1976-81

Destination	1976	1977	1978	1978	1980	1981
	- - - - - - - - - - - - number of head - - - - - - - - - - - -					
Saskatchewan	204,801	284,185	276,813	265,120	238,860	219,880
Alberta	192,162	208,201	227,052	206,331	221,790	189,800
Manitoba	71,895	92,393	44,845	40,349	50,670	43,370
Ontario	252,296	278,467	356,006	270,453	343,730	223,250
Other Provinces	5,110	4,113	3,165	2,202	4,690	6,750
U.S.A.	26,650	75,748	31,038	23,110	17,477	23,030
TOTAL	752,914	943,107	938,218	801,932	882,770	706,160

Source: Saskatchewan Agriculture, Saskatchewan Cattle Marketing Report, 1981 (Regina: 1982).

Note: No reliable data are available for the years prior to 1976. See K.A. Rosaasen and H.G. Brooks, "A Study of the Canadian Cattle-Calves Information System" (prepared for Statistics Canada, September 1981) for further explanation of the data problems in Canadian livestock statistics.

605,032 to 340,630. Of those 340,630 head marketed in 1981, 4.9 percent were bulls, 34.3 percent were cows, 34.6 percent were steers, 24.5 percent were heifers and 1.6 percent were calves. Only 59.1 percent of the slaughter cattle marketed in Saskatchewan in 1981 were fed steers and heifers.

Table 8: Saskatchewan Cattle Marketed for Slaughter, 1976-81

	Total Slaughter	Bulls	Cows	Steers	Heifers	Calves
	- - - - - - - - - - - - - - - - number of head - - - - - - - - - - - - - - - -					
1976	605,032	17,887	201,938	211,724	139,481	34,002
1977	561,890	16,267	191,894	185,950	136,016	31,763
1978	421,638	9,497	152,631	132,948	99,819	16,743
1979	308,573	13,392	88,962	120,704	78,589	6,926
1980	334,900	16,110	110,060	121,400	81,780	5,550
1981	340,630	16,700	116,860	117,760	83,580	5,730
1982	434,710	19,290	136,080	167,080	105,260	7,000

Source: Saskatchewan Agriculture, Saskatchewan Cattle Marketing Report, various issues, 1976-1982.

Table 8 lists the number of cows marketed for slaughter, but it must be emphasized that the real value of beef cows is in their production of offspring and that their slaughter value represents a "salvage value" of the cow. A cattle producer will sell a cow for slaughter when its value in production declines to equal its slaughter value. Slaughter cow prices tend to follow other cattle prices, including feeder cattle. Cow marketings increase as cattle prices

fall, and decrease as their prices rise. The beef cycle results from overadjustment to these short-term market signals.[3]

5. The Saskatchewan Slaughter Cattle Sector

The low level of meat packing in Saskatchewan has been a government concern for many years. Cattle slaughtering could be an important value-added industry for Saskatchewan if the level of slaughter could be increased. In 1976 only 33.5 percent of the slaughter cattle (steers, heifers, cows and bulls) produced in Saskatchewan were slaughtered here. By 1981, this percentage had increased to 64.6 percent, with only an 8 percent increase in the actual slaughter level. Only 340,630 head of slaughter cattle were marketed in 1981, compared to 605,002 in 1976 (Table 9). Most slaughter cattle moving from Saskatchewan are destined for slaughter in Manitoba or Alberta. As late as 1977, more Saskatchewan slaughter cattle were slaughtered in Manitoba than in Saskatchewan. Since 1977 the large decrease in total production coupled with constant Saskatchewan slaughter has resulted in a reduction in slaughter cattle moving to Manitoba and Alberta. Manitoba, however, still slaughters 23 percent of Saskatchewan production.

6. Cattle Prices

A large degree of instability exists in Saskatchewan cattle prices. Table 10 lists average prices paid in Saskatoon for slaughter

---

[3] For a brief description of the beef cycle, see Report of the Commission of Inquiry into the Marketing of Beef and Veal (Ottawa: Supply and Services Canada, 1976), p. 12.

Table 9: Destination of Saskatchewan Slaughter Cattle Marketed, 1976-82

	1976	1977	1978	1979	1980	1981	1982
	- - - - - - - - - - - - - number of head - - - - - - - - - - - - -						
Saskatchewan	202,513	213,930	233,063	197,095	205,670	220,190	252,830
Alberta	47,589	39,546	28,933	26,277	25,080	20,680	28,250
Manitoba	262,803	228,068	116,540	73,577	80,260	79,340	123,770
Ontario	27,501	24,427	15,295	5,868	12,710	5,510	8,960
Other Provinces	2,270	435	227	71	1,630	1,890	850
U.S.A.	62,356	55,484	27,580	5,685	9,550	13,020	20,050
TOTAL	605,032	561,890	421,638	308,573	334,900	340,630	434,710
Saskatchewan Slaughter as a % of Total Slaughter Prodn.	33.5	38.1	55.3	63.9	61.4	64.6	58.2

Source: Saskatchewan Agriculture, Saskatchewan Cattle Marketing Report, 1976-82.

Table 10: Cattle Prices, Saskatoon, 1976-81

	Slaughter Steers A1, A2	Slaughter Calves	Feeder Steers 600-700 lbs.	Feeder Heifers 500-600 lbs.
	- - - - - - - - - - - - - - - $/cwt. - - - - - - - - - - - - - - -			
1976	37.51	24.25	37.58	30.97
1977	39.36	28.45	38.09	32.05
1978	56.46	49.76	63.32	54.48
1979	75.51	78.09	99.05	93.41
1980	73.74	65.23	83.75	76.76
1981	74.64	60.24	77.32	69.56

Source: Saskatchewan Agriculture, Saskatchewan Cattle Marketing Report, 1981.

steers, slaughter calves, feeder steers and feeder heifers from 1976 to 1981. For all cattle in that period, prices rose from the extreme lows in 1976 until 1979 and from that time have fallen. Cow-calf operators mainly base their production decisions on the 600-to-700 lb. feeder steer price, the yearly average of which fell $22/cwt. from 1979 to 1981. Feedlot operators and individual farm feeders who base feeding operations on slaughter steer prices also witnessed a price drop from 1979 to 1981.

7. Provincial Distribution of Cattle in Saskatchewan

The distribution of livestock within Saskatchewan must be understood before considering added investments in the feeding and processing of cattle within the province.

(a) Distribution of Cattle and Calves

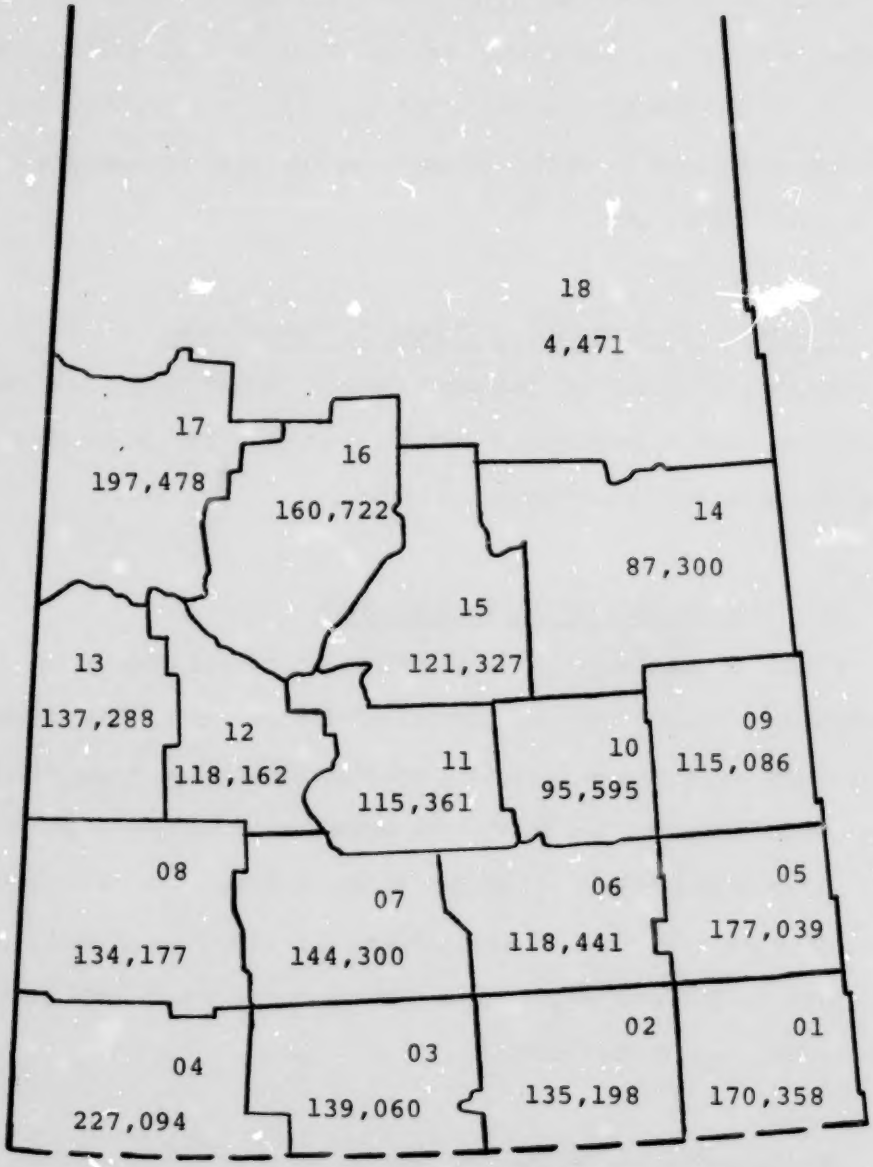
Figure 1 presents the distribution of cattle population in Saskatchewan basis the 1981 Census of Agriculture. The census aggregates livestock numbers by crop district and by census division. The census divisions are shown here since census divisions are smaller and can more accurately illustrate concentration. The major areas of concentration of cattle in Saskatchewan are in the south-west, census division 4; the south-east, census divisions 1 and 5; and in the north-west, census division 17.

(b) Distribution of the Cow-Calf Sector

Figure 2 illustrates the distribution of beef cows in Saskatchewan by census division, in 1981. Beef cows are concentrated in the south-

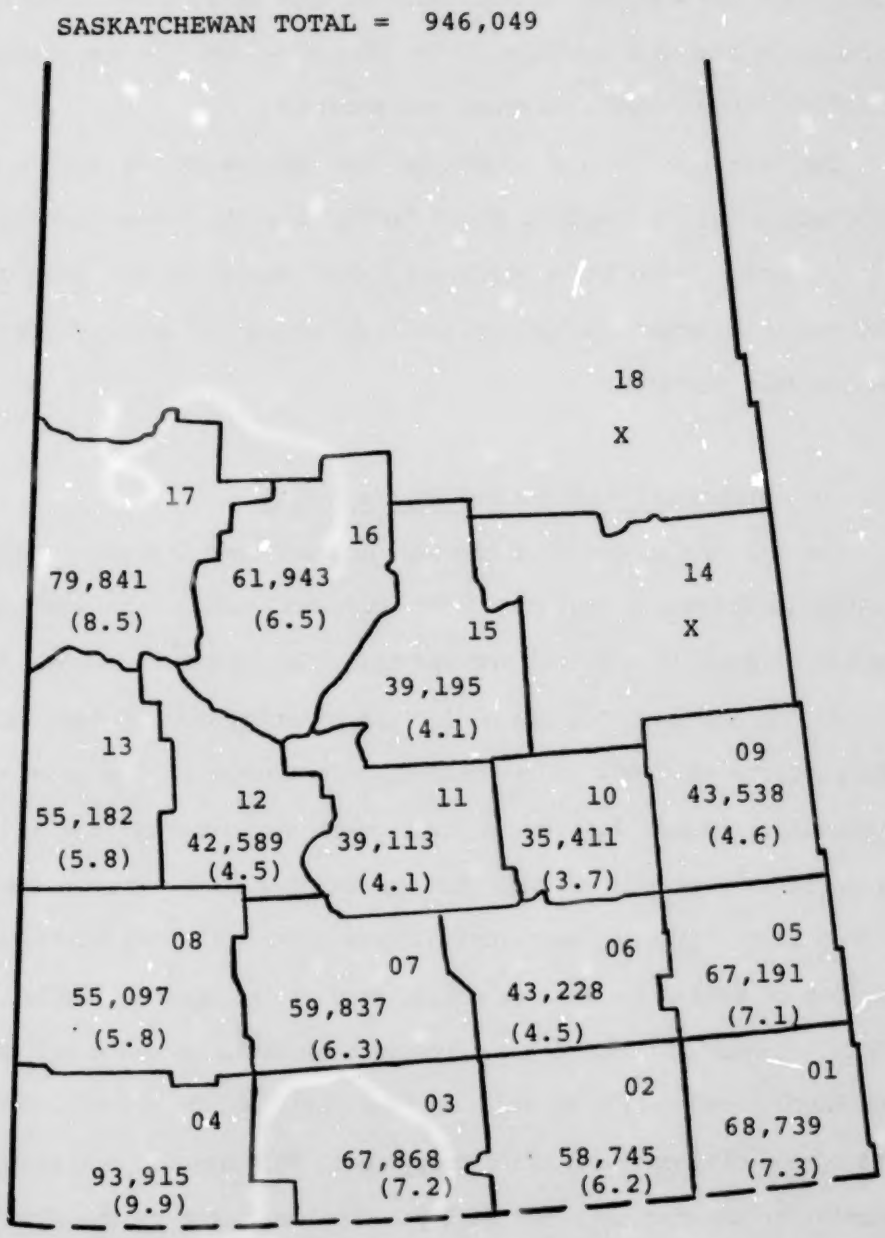
Figure 1: Cattle on Saskatchewan Farms, by Census Division, 1981

SASKATCHEWAN TOTAL = 2,418,457



SOURCE: Statistics Canada, 1981 Census of Canada--Agriculture--Saskatchewan, Catalogue No. 96-909.

Figure 2: Beef Cows on Saskatchewan Farms, by Census Division, 1981



SOURCE: Statistics Canada, 1981 Census Of Canada--Agriculture--Saskatchewan, Catalogue No. 96-909

western districts 3 and 4, in the south-eastern districts 1 and 5, and in the north-western districts 16 and 17. However, even though these areas have the greatest concentration of beef cows, other areas of the province are also significant. The data show that the cow population is widely distributed throughout the province.

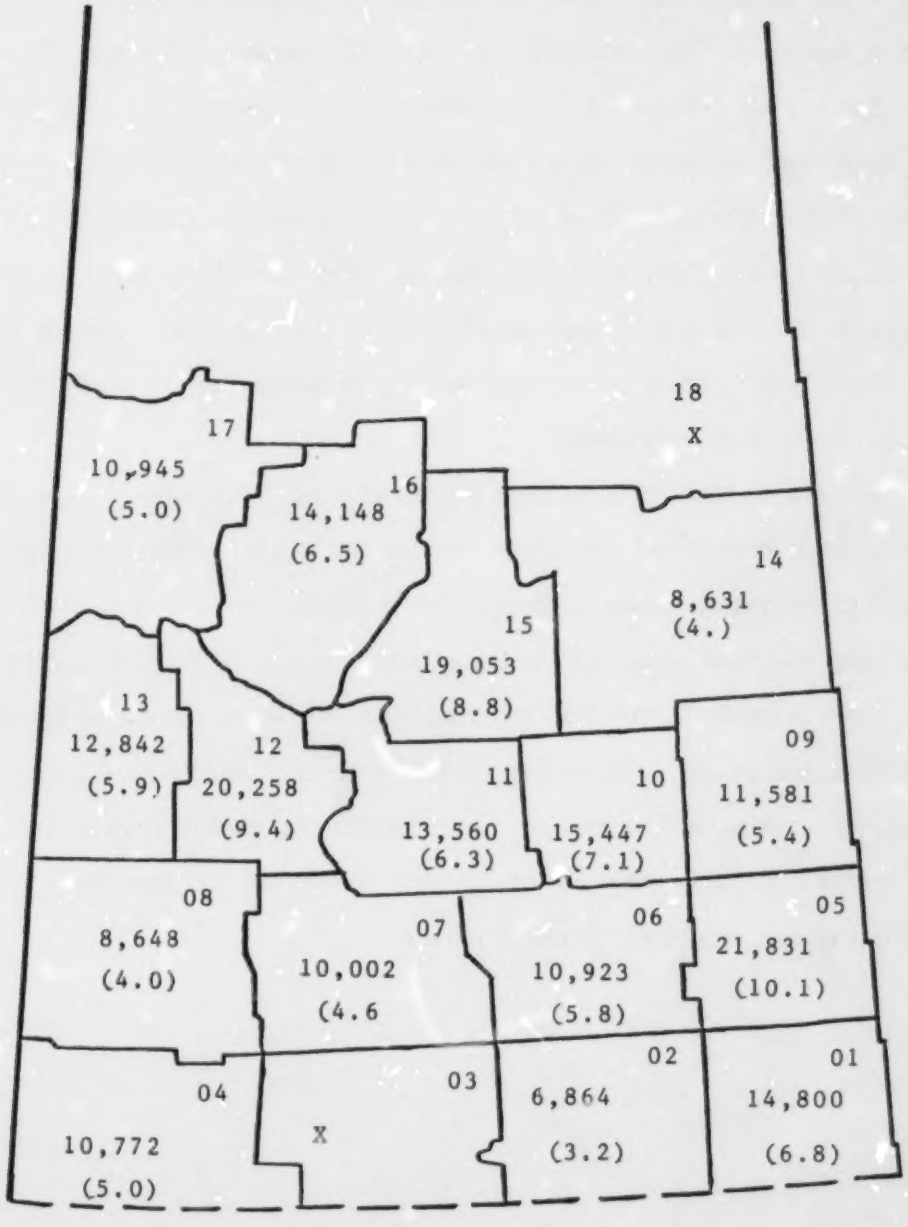
The beef cows of the south-east and north-west regions of the province are mainly kept on mixed farms, while in the south-west cows run on larger ranch lands which are poorly suited to crop production. The remaining areas are largely grain producing and are less important in cow-calf production.

(c) Distribution of the Fed Cattle Sector

The fed cattle sector of the Saskatchewan beef industry is concentrated in different regions of the province than is the cow-calf sector (Figure 3). Cattle are fed mainly in census divisions 1, 5, 10, 12, 15 and 16. One reason for the existing distribution is the availability of feed. The south-western region of the province typically produces less grain than other regions, and the grain produced is generally of high quality and thus does not move onto the feed market. The northern regions grow more grain and often large amounts of feed grade grains, making feed grains more available in the north. Census division 5 has 10 percent of Saskatchewan's fed cattle. The high concentration in this area is also tied to the feed market. The option of second and third cropping in this area is available, but mainly for growing oats and barley. Its proximity to the Winnipeg market, which has typically been the premium price market, may also be a factor.

Figure 3: Cattle on Feed on Saskatchewan Farms, by Census Division, 1981

SASKATCHEWAN TOTAL = 216,420



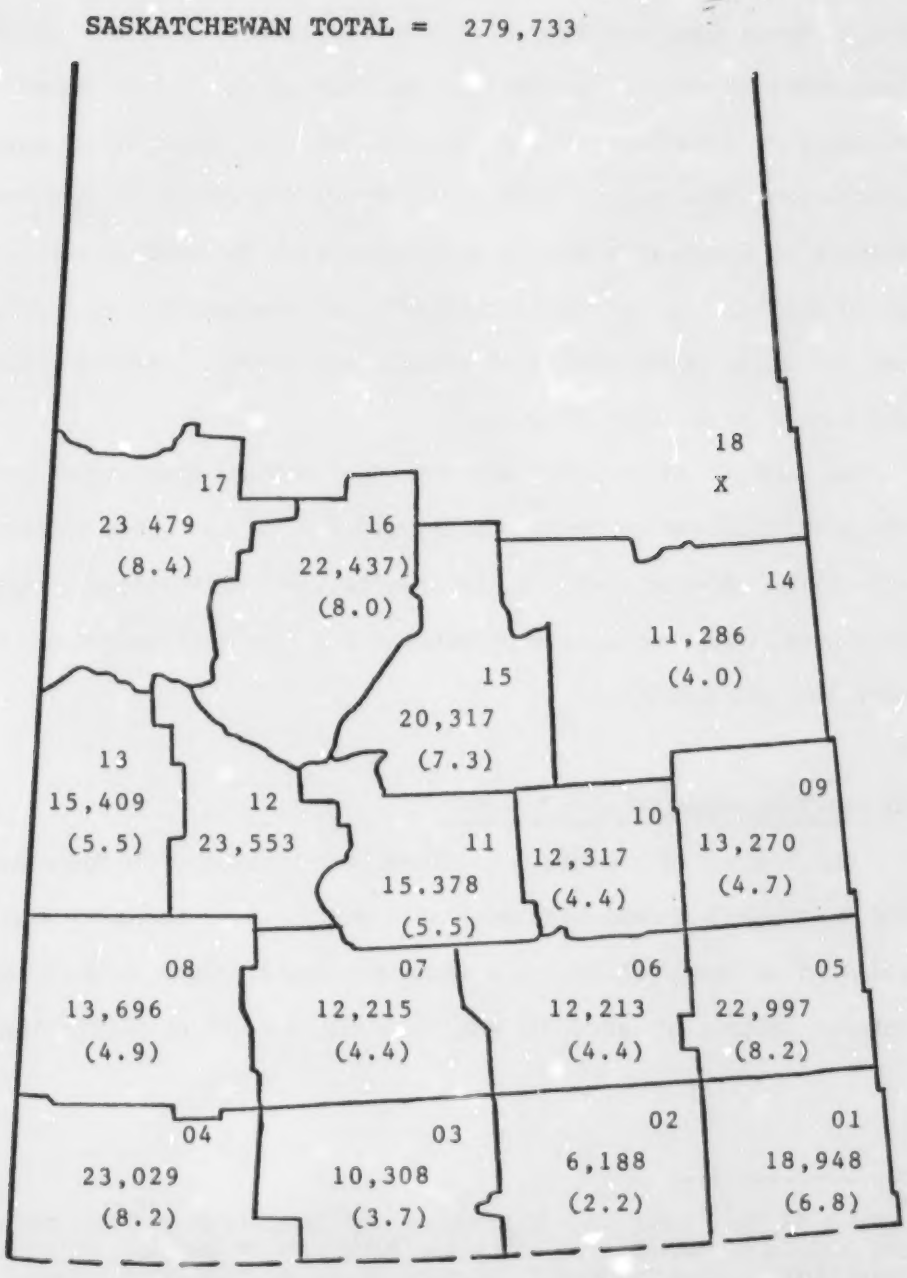
SOURCE: Statistics Canada, 1981 Census Of Canada--Agriculture--Saskatchewan, Catalogue No. 96-909

(d) Distribution of Slaughter Animals

Data are available on the number of heifers raised for slaughter and the numbers of steers over one year old on Saskatchewan farms. These two figures are summed in Figure 4 to represent cattle raised for slaughter. The concentration of cattle raised for slaughter is similar to the provincial distribution of all cattle; that is, the major concentration is in the south-west, south-east and north-west areas of the province. Most of the slaughter animals raised in census divisions 5 and 1 in the south-east are fed past June 1 while in divisions 17, 16 and 4, approximately half the slaughter animals are on range land. The greater availability of range land in these areas accounts for this difference.

It is important to note from the data given in Figures 1 to 4 that there is a high level of concentration of cattle along both the Alberta and the Manitoba borders. For example, roughly 20 percent of the beef cows are along the Manitoba border while 30 percent are along the Alberta border. The marketing of beef cattle to plants in Alberta and Manitoba is not much more difficult than to Saskatchewan plants or feedlots. This situation may be difficult to change unless its existence is fully recognized in any expansion of the beef slaughtering facilities in the province.

Figure 4: Heifers and Steers Raised for Slaughter on Saskatchewan Farms, by Census Division, 1981



SOURCE: Statistics Canada, 1981 Census Of Canada--Agriculture--Saskatchewan, Catalogue No. 96-909

B. THE EVOLUTION OF THE SASKATCHEWAN BEEF INDUSTRY[4]

1. Introduction

There are historical reasons, both economic and political, why Saskatchewan does not have a thriving livestock industry. Market conditions as well as government intervention can and do affect the competitive advantage of any industry and the resulting resource allocation. For policy planners to ignore the effect of government support or evolving marketing conditions would be short-sighted. It would result in an inferior policy mix, as programs and expenditures may be put in place supporting commodities in which Saskatchewan does not have a comparative advantage.

In view of the previous data one might contend that Saskatchewan's diminishing livestock sector is because of its lack of comparative advantage. However, many of the institutional arrangements, it will be argued, have had adverse effects on the livestock sector and have curtailed its potential.

2. The Production Sector: Pre-1940

The history of the grain and livestock industries in Saskatchewan and in western Canada has seen both sectors move to lofty peaks followed by deep valleys on a recurring basis. Both sectors have entered periods of unbounded optimism only to end in bitter disap-

---

[4] Much of the historical information was developed in K.A. Rosaasen and J.M. Lee, "Pride, Prejudice and Politics: A Century of Livestock Marketing in Saskatchewan," (working paper no. 1034, Department of Agricultural Economics, University of Saskatchewan, Saskatoon, March 1983).

pointment. In most instances, one industry's peak has been the other's valley.

In the late 1800s, the region now known as Saskatchewan was a vast, unoccupied land with only a few ranchers who were grazing livestock on large tracts of Crown land. The government regulations provided for leases at one cent per acre per year, making the rearing of livestock extremely profitable. One author expressed it as follows: "With an ordinary year,...the profits of a well-managed ranch are large; so large that few businesses in the Dominion of Canada, even in the British Empire, can equal the ranching business as a profitable investment."[5]

When government began pursuing an extensive settlement policy, rancher domination of the region could not be sustained. In the 1890s the regulations providing for cheap leases were removed and the ranching sector gave way to settlers and their more intensive land-use system. The ranchers, of course, sought to align themselves with government to maintain their dominance of the region, but were unsuccessful. The influx of settlers created a new environment. Grain production represented a more intensive land-use system, and the Crow freight rates, which restricted the monopoly powers of the CPR, became a tool for economic development. The government's Crow rate policy encouraged settlement, the flow of inputs into the region, and the export of a major product—wheat.

The settlement of western Canada was a major development policy of

---

[5] Anonymous, Ranching in the Canadian Northwest, p. 27.

the federal government. Many of the government's implicit roles and policies to assist settlement were factors that caused wheat to emerge as the dominant product of the economy. One of these factors was the offering of homesteads (i.e., free land) to settlers. Land was a major input into grain farming and providing it free meant that producers with a small investment in seed, a horse, and a plow were able to produce the crop in a relatively short time period. At the same time, livestock were reared extensively, but a period of three years was required to produce a steer, thus creating a slow cash turnover. Banking institutions were not well-developed and producers required significant levels of capital funding in order to start a livestock herd and operate it during the period of animal growth. Bankers of the time did not consider it sound policy to loan money to livestock producers for a period of two or three years.[6]

An institutional factor which was to have a lasting influence on livestock production, particularly the cow-calf sector, was the land survey system in Saskatchewan. This provided a road allowance every mile running north and south and every two miles running east and west. Each block contained eight quarter sections of land. The result was that this survey mechanism, while being very linear and easy to conduct, resulted in a pattern of land ownership which would bear little relevance to the physical capability of the land. The natural features—rivers, valleys and grazing marshes—were sliced into quarter-section blocks. This was to render much of the area

---

[6] From a statement issued by joint committee of commerce and agriculture in Winnipeg as quoted in Saskatchewan Livestock Commission, Interim Report (Regina: King's Printers, 1917).

suitable to livestock very costly, due to the high costs of maintaining fences on small parcels of marginal land.[7]

Another feature of settlement was the use of a property tax to generate revenue for local government. The assessment system was not initially well-developed. The early tax system used no assessment, but applied a flat tax to all deeded land.[8] This resulted in a tax saving incentive to the homesteader for choosing the best land available. Lower quality land either remained with the Crown or was settled at a much later date. The consequences were threefold. Firstly, it encouraged marginal land to be used in wheat production as a means of securing revenue to help pay the tax. The 1921 Royal Commission of Inquiry into Farming Conditions suggested that too high an assessment or excessive taxation of land suitable only for grazing purposes encouraged an owner to break it up in the hope of getting a greater return from it.[9] Secondly, the maintenance of grazing land by the Crown, with cultivated land under private ownership, may have implications for today because capital appreciation on owned land is an important source of equity for further investment and for

---

[7] This was not the case in all rural municipalities, as the roads were not developed and the fences were not necessary unless the municipality deemed them necessary. Many areas used Texas gates, bought road allowances or enacted open herd laws, and this reduced the impact.

[8] See the Saskatchewan Rural Land Assessment Manual (Regina: Department of Municipal Affiars, 1979), p. 14.

[9] Report of The Royal Commission of Inquiry Into Farming Conditions, Regina, Kings Printer, 1921, pp. 37-38.

retirement income.[10] Thirdly, the land which remained with the Crown (as well as further acquisitions for conservation purposes) was leased out at attractive rates so, until availability of leased land for an individual became a constraint, there was no incentive to add further inputs to increase productivity.[11]

The role of the Dominion government in terms of encouraging farm diversification and animal husbandry on the prairies was not without its critics. David Spector, for example, suggested that the federal government in the early 1900s was "expending little effort to assist prairie animal husbandry financially and morally. The Department of Agriculture geared its program towards encouraging grain production."[12] He goes on to suggest that the pamphlets and educational efforts were oriented towards grain and the effort to assist livestock producers were directed primarily at eastern Canada, ignoring prairie concerns.

3. The Marketing and Trade Sector

Many factors affected marketing and trade, thus influencing the pattern of livestock development on the prairies. Government action

---

[10] It is recognized that ranchers who have sold private lands and been allowed to transfer their crown grazing lease have received part of the appreciation in value. Crown land in community pastures and PFRA pastures would not provide benefits of appreciation to individual ranchers.

[11] If a constraint exists on the amount of leased land an individual can acquire and if he wishes to expand his operation he must either buy land, add an enterprise or add inputs.

[12] David, Spector, Animal Husbandry in the Canadian Prairie West, 1880-1925 (Ottawa: Canada Department of Indian and Northern Affairs, 1978), p. 19.

in the marketing and trade area both within Canada and outside of Canada continues to influence the development of the grains and livestock economy in Saskatchewan. From the early period until the present, trade in livestock and livestock products has been periodically disrupted by problems of disease[13] and blatant protectionism. In the early period, trade was mainly with Britain, with the U.S. becoming more important after World War I. This created an unstable market environment for the livestock industry throughout the period and the federal government did not give adequate emphasis or was otherwise unable to succeed in developing a sound trading base in livestock products.

Another important factor was the freight rate on live animals from western Canada to Montreal and points west thereof.[14] Carload rates to Montreal as of September 1, 1914, in cents per hundredweight were as follows: Calgary, 90 cents; Saskatoon, 88 cents; Yorkton, 77 cents; Broadview, 75 cents; and Winnipeg, 60.5 cents.[15] These freight rates in combination with the geographic pattern of Crow freight rates on grain, encouraged the feeding of livestock in Alberta rather than Saskatchewan. The Crow rate from Regina and Saskatoon to Thunder Bay for cereals was 20 and 22 cents per hundredweight, respectively, while

---

[13] Problems with contagious diseases such as foot and mouth resulted in periodic closures of the border.

[14] Montreal and points west thereof refers to the practice of applying a common freight rate to points in central Canada west of Montreal such as Toronto, Ottawa, and Hamilton for shipments from western origins.

[15] Dominion Bureau of Statistics, Livestock and Animal Products Statistics (Ottawa: 1927), p. 100.

from Edmonton and Calgary it was 26 cents per hundredweight. Under these relative freight rates, Alberta was a preferred region for livestock feeding.

Another early federal program, implemented in 1925, paid one-way expenses of farmers from eastern Canada who purchased one carload or more of steers sold at any of three special feeder sales at Winnipeg, Moose Jaw or Calgary, or who purchased a carload or more directly from the range.[16] This subsidy on the movement of western feeder steers from the prairie region to eastern Canada was to encourage feeding in central Canada and to reduce the movement of Canadian feeders to the United States.

Economic factors also influenced the packing industry's early development. The packing industry went through a period of rapid concentration around the turn of the century. The industry's structure moved away from perfect competition towards oligopoly. The early beef packing industry shifted to Winnipeg in 1919, as it was the railhead to eastern markets. Greater cattle numbers had also attracted packers to Alberta, where economies of scale in packing were available in the early part of the 1900s. The livestock population and the number of hogs and cattle on farms, as well as the numbers slaughtered by province, are provided in Appendix Tables A.1 and A.2. The economic advantages of livestock feeding in Alberta, based on relative advantages in freight rates, strengthed the livestock industry in Alberta in the early 1900s. Once packers became

---

[16] Report of the Minister of Agriculture for the Dominion of Canada, 1925, pp. 44-45.

established in Alberta and in the rail center at Winnipeg, a practice of oligopolistic pricing by packers could lower prices in Saskatchewan relative to Edmonton or Winnipeg. Dominant firms could use a predatory pricing practice to keep other firms out of Saskatchewan and historical evidence suggests that this was the case.[17]

Markets for livestock in Saskatchewan at Prince Albert, Moose Jaw, and Saskatoon yards had a lower volume relative to the markets at Calgary, Winnipeg, or Edmonton. Thinner markets frequently experience greater price volatility and also higher marketing costs per animal. Saskatchewan producers faced higher marketing costs as a result of the greater distances from farms to packing plants, higher freight costs and greater tissue shrinkage. Receipts of Saskatchewan livestock at Winnipeg often exceeded the receipts from Manitoba producers. Saskatchewan cattle also found their way to stockyards in Toronto and Montreal. This implied that returns to the producer, net of transfer costs and shrinkage, would have been somewhat lower in Saskatchewan than for points in either Alberta or Manitoba.

These examples of government intervention and support for the grains industry during these early years are not intended to indicate that there was no support for the livestock industry, but rather that support favored grain production. It may have been logical for the federal government to favor the wheat industry since it was a source of foreign exchange earnings while the livetock industry was much more domestic oriented. Indeed, the provincial government actively

---

[17] See K.A. Rosaasen and J.M. Lee, "Pride, Prejudice and Politics," pp. 46-48.

encouraged diversification with events such as the Better Farming Trains and the Better Bull Special. Other programs to promote quality improvement in cattle and to support the industry in times of distress, such as drought, also existed. The federal government maintained quarantine facilities and assisted in paying freight on pure-bred livestock and initiated other programs on the input side. However, the point is that these programs, although favoring livestock, were designed to promote diversification in order to stabilize the farming sector.

4. Differing Regulations—Some Underlying Reasons

The regulations governing an industry are dependent upon the political process. An industry which can present its case well and mount a sustained effort to support change is most likely to achieve change, all other things being equal. The regulations sought are also a function of the view and background of the individuals in the industry and the economic conditions facing the industry. Historically, the livestock industry was, by and large, composed of producers who were rugged individualists. This made it difficult to induce co-operation, particularly among the larger ranchers in the southwest. Grain producers, on the other hand, were more group-oriented. They also tended to face a set of problems which could more easily be identified, and therefore co-operation among individual producers evolved more easily than among livestock producers. In the grain industry, for example, the price instability within the crop year was rather visible, with low prices at harvest and high prices in the spring and early summer. This happened each year and the learning

process was quick. Livestock price cycles, on the other hand, were several years in duration. Grain producers rallied around identified problems, with the railroads and the Winnipeg Commodity Exchange often the major targets.

Grain producers tended to have, at least in the early stages of development, a rather similar cost structure. Once their homesteads were staked, they faced similar operating costs to cultivate the land and produce a crop. The cost structure in livestock differed on the basis of: (1) the size and sophistication of operation, (2) the type of land ownership, (3) the capability of the soil, (4) the stage of product produced, (5) marketing methods and opportunities, and (6) the degree of specialization (or diversification) of production.

The livestock marketed tended to be more heterogeneous; i.e., livestock included calves, stockers, feeders, slaughter animals, cull cows and breeding stock. Producers of different types of cattle each argued that their type was best (or, to be fair, at least different), and thus needed a different marketing structure. This meant that a grading system was much harder to develop and implement for livestock than for grain. Early in the grain history, rules were developed for trade under the Canada Grain Act because of the need for export standards. The wheat industry very early began serving an export market in a major way, while livestock tended to predominantly serve the domestic market. This meant there was less incentive to implement a set of standards for beef.

Another factor which was undoubtedly important was the proportion of income earned from each activity. Mixed farming units tended to earn a significant portion of their income from grain production.

Livestock tended to be a secondary enterprise and therefore new technology and marketing methods were not pursued to the same degree. The livestock enterprise operated on residual labor, management and capital. Specialized grain producers had considerably more time to spend on political activities and education after the harvest. Livestock was a year-round occupation. The skills initially required were also different: a higher level of skill and management was required for successful livestock production.

Differences between grain and livestock were not confined to the production sector. Consumers and the electorate perceived basic differences between the wheat and the livestock industries. Wheat costs were a relatively small component of the prices of bread, cookies, cakes, and pies, while livestock prices were a significant part of steak and hamburger prices. Consumerism was developing as early as the 1920s, and this may have meant that legislation for livestock price enhancement could have encountered greater consumer resistance than did that for grain.[18]

The result of these major differences between the grains industry and the beef industry was that grain co-ops, developed early in the century, grew relatively large. These co-ops tended to lobby effectively on behalf of grain producers. With livestock, the growth was not as significant, neither was co-operation as great, and the lobby was less effective. The history of the evolution of the pooling movement, producer co-operative elevator companies and the development

---

18 Report of the Royal Commission on Price Spreads (Ottawa: 1935).

of the Canadian Wheat Board is well documented. These provided an effective voice for grain producers in the development of their industry. Livestock co-operatives were also started during the early part of the century. The livestock pool joined the Saskatchewan Wheat Pool in the 1940s and this may have influenced the degree to which they pressed legislators for changes to improve the western livestock industry.

5. Regulations and the Meat-Grain Interface in Western Canada: After 1940

The list of programs which provided benefits to grain producers in more recent years are well known. The Prairie Farm Assistance Act, like the more recent Saskatchewan Crop Insurance Program, was a direct government subsidy. Crop insurance substantially reduced the production risk of straight grain farming and therefore reduced the need to maintain livestock to add income stability. No similar program exists to reduce livestock production risk.

The trading rules for wheat, oats, and barley differ considerably from those for versus livestock. No imports of wheat, oats or barley are allowed into Canada without the licensing of the grain to be imported by the Canadian Wheat Board (CWB). No similar degree of protection exists for cattle, hogs, or sheep and lambs. Until recently, Canadian livestock prices could be depressed dramatically by a large movement of meat products from Australia or New Zealand, as was the case in the mid-1970s. The Meat Import Law has since provided an upper limit, but offers little effective protection for Canadian producers.

A number of programs brought in during emergency periods to assist livestock production in eastern Canada inhibited livestock in the West. An example is Feed Freight Assistance (FFA), enacted during World War II. This subsidized the movement of grain from western to eastern regions. Another program which is less well known, was that of "drawbacks." After the war, producers were paid an additional amount on a per-bushel basis for grain which was sold to the elevator for eastern consumers. That is, if a western farmer fed the grain on the farm he did not get the additional payment. These programs diluted the prairies' comparative advantage in livestock feeding relative to eastern Canada.[19]

The evolution of the CWB permit book during the Second World War resulted in a system that favored wheat production relative to other crops. The original quota system, which rationed the availability of the lucrative export market, quickly taught producers that quota grain sales could achieve better prices. After a glut problem, where the folly of having grain delivery tied to seeded acres was recognized, producers were allowed to deliver on the basis of cultivated acreage. Producers would then allocate their quota acres to wheat, whose value was higher, resulting in more dollar sales per acre of quota. The system favored wheat, except for some special arrangements for crops such as malting barley. For a brief period, the unit quota allowed more bushels of oats and barley to be delivered than wheat. This

---

[19] G.L. Burton, "An Analysis of Probable Effects of the Recent Revision in the Prices of Coarse Grains on the Production of Hogs and Grains" (memo, University of Saskatchewan, 1947).

created a small incentive to deliver oats or barley rather than wheat on the unit quota, depending upon the relative prices. For the most part, however, the quota system favored wheat.

As production continued to outstrip the availability of the CWB market, quota became more valuable and the relative value of marginal land increased because of its use as a quota base. This encouraged producers to take marginal land out of livestock production and put it into grain production. Conversion of land from native pasture to cultivated pasture to receive quota may have had a positive effect by increasing carrying capacity. Some would argue that the quota system actually favored livestock in two ways: firstly, a livestock producer was allowed to include a percentage of cultivated forage as quota acreage, and secondly, a producer feeding livestock received the same quota per acre even though he used some of his grain on his own farm.

It can be argued, however, that this benefit was offset by the instablity that the quota system created in the local or non-board market since quota grains typically received a high value relative to the depressed local prices. The CWB markets are "rationed" and regulations prior to the early 1970s restricted interprovincial movements of grain. This led producers to believe that the CWB was the high-value market and any other use was lower in value. Whatever the arguments, it is fair to say that the CWB permit book system, along with its monopoly powers, has had a sizable effect on resource allocation in the prairies.

The implicit on-farm grain storage system which developed under the CWB quota system also had implications for livestock. There was little development of large commercial feedlots in western Canada in

the 1950s, 1960s and 1970s. This is in contrast to what occurred in the United States. The U.S. policies for holding surplus grain in that period resulted in centralized storage, with grain readily available at known prices. These policies facilitated the development of large, specialized livestock feeding operations since grain was easily found and the price was known. In Canada, the quota system necessitated storage of grain on individual farms, keeping it dispersed and creating higher search costs for commercial feedlots. The existence of a range of price expectations by grain producers created fluctuations in both grain prices and supply for feedlots. The result was a high cost of grain procurement in western Canada relative to the United States.

Another feature of the U.S. grain policy during the period prior to the 1970s was that it tended to maintain a controlled surplus of grain at a stable price. The price stability affected world grain markets. This, in effect, greatly assisted livestock producers by reducing both the price and the quantity uncertainty on a major input, grain. Reducing this instability particularly helped specialized livestock production units, which had large financial obligations. The beef industry, particularly at the cow-calf level, is very vulnerable to changes in grain prices. Any sudden increase in grain prices, despite an option to feed forage, results in lower feeder cattle prices and lower returns to the cow-calf operator. Fluctuating returns adds risk to the production process. Other industries, like hogs and poultry, are also affected but biological factors of a shorter production period and multiple yearly progeny allow production levels to adjust more rapidly.

Another distinguishing difference between the Canadian and the U.S. grain policy was that the U.S., through its soil bank, withdrew land from production and producers added more inputs to land in an effort to increase their production. In Canada, the quota system encouraged people to use their land extensively (each cultivated acre equalling one quota right) and to summerfallow more frequently during periods when gluts occurred. This resulted in a lower total input use and a lower total production of grains in Canada.[20]

The grain industry has a history of government intervention both in terms of dollar commitment and through regulations and institutions. In addition to the CWB, crop insurance, Feed Freight Assistance (FFA) and Prairie Farm Assistance Administration (PFAA), there also were: (1) the Western Grain Stabilization Act (WGSA) to stabilize the net cash flow in the prairie region through a government payment of about 4 percent of gross sales; (2) acreage payments to producers when grain returns were low; (3) a Temporary Wheat Reserve Act to assist farmers, through elevator companies, with the storage of a large amount of wheat (this program particularly favored wheat relative to other commodities); (4) cash advances for grain producers when low sales and low prices resulted in depressed income; (5) a Lower Inventory For Tomorrow (LIFT) program in response to high stocks and low prices, with a substantial payment being made to producers to divert acreage out of wheat production; (6) tax rules that were

---

[20] W.H. Furtan and G.E. Lee, "Economic Development of the Saskatchewan Wheat Economy," Canadian Journal of Agricultural Economics, 25(November, 1977): 15-28.

changed in the early 1970s to allow producers to reduce their current tax payable by foregoing the interest on their grain receipts until after the end of their taxation year; (7) special accelerated capital cost allowances for grain storage facilities and dryers (and silos); (8) the Crow rate to provide subsidized movement of grain for export and for domestic use as far as Thunder Bay; (9) transport subsidies for grain moving via eastern ports; (10) government assistance on grain sales, indirectly through guaranteed credit and directly through foreign aid to developing countries; and, (11) a two-price wheat system that was predominantly a government-to-consumer subsidy but also stabilized and increased producer prices.[21]

6. Regulations and Economic Forces: The Results

The above discussion has alluded to policy intervention within the grain-livestock sector of western Canada. The discussion does not deny that there were economic factors not related to policy that reinforced some of the growth within the grains industry. For example, many breakthroughs in technology favored grain relative to livestock, as farmers moved from horses to tractors and from threshing machines to combines. The grain sector increased its efficiency as technology sustituted capital for labor. Grain production equipment was flexible and could be used to produce different commodities (e.g., wheat,

---

[21] The two-price wheat program placed a floor and a ceiling on wheat prices. When world wheat prices were low, it was a consumer-to-producer subsidy and when world prices were high, it was a producer-to-consumer subsidy. At price levels between the floor and the ceiling, it was a government-to-consumer subsidy.

barley and rapeseed)—and with each commodity having a variable price, there was a considerable advantage in having an ability to adjust the mix of crops at a minimal cost. On the other hand, similar labor-saving technologies and the advantages offered were not as readily available in the livestock industry; neither were they flexible between beef, poultry and hogs. The tasks of forage harvesting, livestock feeding, and general livestock handling remained labor-intensive, and as a result livestock production (beef in particular) suffered. A partial cause of this divergence in available technology might be attributed to the planned direction of the research effort.

Society's preferences have also changed with rising incomes and with more people demanding more leisure time. Grain farming, although demanding long hours during peak periods in the spring and fall, enables a winter of curling and coffee with occasional "fun in the sun."

The grain system was developed as an export-oriented economy; the rail system and the total grain infrastructure was developed to serve that market. Some still believe that the only way to generate wealth is through the export sales of a commodity. This preoccupation with the export market has left the domestic market wanting in many areas. Information on local supplies and prices is not satisfactory and the lack of infrastructure for the domestic market has led to excessive costs for transfers of grains between local producers and users. The domestic feed grain policy and the interaction with the CWB initial payment makes both the pricing and availability of local feed grains uncertain. The mechanisms to serve local users also results in redundant charges.

The infrastructure in western Canada has not been consistently developed to service the livestock industry, nor have the other institutional arrangements to handle risk and uncertainty. In the U.S., a forward-pricing system for feed grains, feeder cattle, and slaughter cattle exists. With today's uncertainty about price movements and the risks entailed, mechanisms to share or transfer risk are needed. Many banks in the U.S. will not loan funds unless the feedlot operator has hedged a part of his production. The hedging options for a Canadian producer are more complex and more costly due to possible border closures to the product and to fluctuations in the exchange rate. The producer's inability to transfer risk to someone else through hedging has discouraged the move towards specialized units in Saskatchewan.

Likewise, there is no institutionalized hay market within the western region and there are no hay grading standards in place. The result is that few producers are willing to plant grass on small saline areas because of either an inability to market hay or the high cost incurred in marketing it. Livestock producers (particularly dairy producers) also face high costs of market search in the hay market and long distance hauls when hay supplies are located.

Unfortunately, a confrontational environment has developed between grain and livestock producers, with the bargaining power shifting dramatically between the two sectors, depending upon whether the situation was one of grain surplus, as in the late 1960s, or shortage, as in the mid-1970s. This added market instability creates risk and uncertainty for both sectors and is not in the long term interest of either. The resolution of this conflict is probably the largest

single challenge facing policy makers. Parts of this conflict will be highlighted in subsequent sections of this report.

C. THE COW-CALF AND FEEDING INDUSTRY

1. The Cow-Calf Industry

Saskatchewan beef cow numbers declined from 1.24 million head in 1975 to 970,000 head in 1981 (Table 6). However, the size of individual cattle operations has been increasing (Table 11). In 1976, the average number of cattle on farms in Saskatchewan was 75. Note, however, that the average size of herds was the smallest for Saskatchewan. The largest herds were in Alberta, though the percentage increase in herd size has been the greatest for Saskatchewan from 1961 to 1976.

Table 11: Average Number of All Cattle on Farms Reporting Cattle; 1961, 1971 and 1976

Province	Census Year 1961	1971	1976
	- - number of head - - -		
British Columbia	59	80	81
Alberta	56	90	107
Saskatchewan	34	60	75
Manitoba	59	80	81

Source: Western Canadian Agriculture to 1990, Canada West Foundation Special Task Force Report, W.H. Horner, Chairman (Calgary: 1980), p. 101.

The distribution of the size of cattle operations in Saskatchewan has been shown (Table 3, Section A). In both 1976 and 1981 the

largest number of farmers had from 78 to 122 animals. In 1976 and 1981 this category made up 16.2 percent and 15.1 percent of the farms, respectively. The next size, which accounted for the largest percentage of farms, consisted of those which had between 18 and 32 animals. Roughly 30 percent of the farms reporting cattle had either 18 to 32 or 78 to 122 cattle.

Table 12 shows the breakdown of cow numbers by crop districts. The largest number of cows are in the southwest, southeast and northwest parts of Saskatchewan. The type of operation varies throughout the province. For example, in the southwest many of the cattle operations exceed the 100-cow herd size and are of a highly specialized nature, whereas in the north-central part of Saskatchewan cattle are kept as part of a "mixed" farming operation.

Table 12: Beef Cows on Saskatchewan Farms, by Crop Districts, 1976-80

Crop District	1976	1977	1978	1979	1980
	- - - - - - - - - thousands of head - - - - - - - - -				
1	135.0	130.0	118.0	102.9	108.5
2	64.0	59.5	57.0	53.3	56.1
3A	121.0	120.0	114.0	109.1	114.8
3B	108.0	104.0	98.0	91.6	94.9
4	114.0	109.0	106.0	105.3	110.7
5	173.0	171.5	140.0	129.0	132.3
6	111.0	105.0	94.0	89.7	92.4
7	92.0	86.5	80.0	83.1	81.6
8	70.0	64.0	58.0	54.2	56.8
9	227.0	223.5	200.0	186.8	196.9
Province	1,215.0	1,173.0	1,065.0	1,005.0	1,045.0

Source: Saskatchewan Agriculture, Agricultural Statistics, 1980.

2. The Use of Public Lands

Public grazing lands are an integral part of the Saskatchewan livestock industry. Roughly 8 million acres of public land are leased in one form or other by cattle producers (Table 13). The PFRA and provincial pastures alone make up over 2.5 million acres. Approximately 170,000 head of cattle were placed in the PFRA and provincial pastures in 1981 (Table 14). Crown lands leased to individual producers support about 300,000 head annually. The 531,822 cattle (including yearlings and calves) that grazed on public lands in Saskatchewan represent approximately one third of the provincial cattle herd.

Table 13: Classification of Public Lands in Saskatchewan, 1977-81

	1977	1978	1979	1980	1981
	- - - - - - - - - - number of acres - - - - - - - - - -				
Association pastures	646,350	646,620	657,801	656,660	658,613
PFRA pastures	1,811,324	1,811,324	1,849,289	1,795,237	1,763,277
Provincial pastures	777,231	782,796	784,466	783,747	787,414
Grazing and hay leases and permits	4,454,585	4,967,366	4,977,267	4,931,499	4,909,259
Cultivation leases, permits and time sales	713,053	646,834	587,099	546,004	535,373
Irrigation leases and sales	30,380	28,045	24,196	23,147	22,437
Total	8,432,923	8,882,985	8,880,118	8,736,294	8,676,373

Source: Saskatchewan Agriculture Lands Branch.

Table 14: Cattle on Public Lands, Saskatchewan, 1977-1981

	1977	1978	1979	1980	1981
	- - - - - - - - - number of cattle - - - - - - - - -				
Association pastures	47,314	44,090	42,272	42,369	42,423
P.F.R.A. pastures	106,634	111,201	105,267	110,020	97,398
Provincial pastures	92,958	88,876	85,236	83,952	82,411
Grazing and hay leases and permits	356,366	301,682	301,682	301,600	299,000
Cultivation leases, permits and time sales	13,107	10,000	10,000	10,000	9,685
Irrigation leases and sales	800	800	800	800	905
Total	617,179	556,649	545,257	548,741	531,822

Source: Saskatchewan Agriculture Lands Branch.

The size of cattle herds differs greatly among regions in Saskatchewan, due partly to the government's granting of leases and the restriction placed on the number of cattle that an individual can place in PFRA or provincial pastures. In many of the mixed farming areas cattle are sent to government pastures where limits on the number placed per operator are applied. However, in the southwest part of the province, some of the large cow-calf ranchers either own their pasture outright and/or have Crown land leases (i.e., non-PFRA/provincial community pastures). Some of these leases involve large blocks of land allocated to a single operator, and these have made the larger herds possible.

From Table 14, it is apparent that the number of cattle placed in both the PFRA and provincial pastures has been declining. If this reduction is due to farmers getting out of livestock production because of age, lack of profitability or other factors, rather than

from further grazing limitations put in place by pasture managers, then those wanting to expand now have the opportunity to do so.

Recently, many cow-calf operations in Saskatchewan have not been profitable. The poor profit picture partly explains the decline in cow numbers. The decline also is apparent in terms of cattle placed on public lands. The numbers were reduced from 617,179 head in 1977 to 531,822 head in 1981 (Table 14).

This reduction in placements of cattle on Crown lands reflects the general decline in livestock numbers as a number of small operators have sold off their herds. Some PFRA pastures are experiencing difficulty in filling the pastures with existing restrictions on the maximum number per producer and the further specification of breeding stock only. In response to the changing conditions, some pastures are now allowing dry cows and yearlings into pastures and larger allotments per operator.

Table 15 gives a rough picture of the profitability of the cow-calf operation from 1970 to 1981. There was only one year (1978) when the net margin for producing calves was positive. Clearly, ranchers of superior management did better than the data suggest. Because of better marketing information, certain cow-calf operators capitalized on the within-year price variability in feeder steer prices. Also, costs are lower for some producers than others because of such factors as differences in herd size, pasture availability and rental rates. Although accurate data are not available, it is safe to assert that the per-unit costs of producing, for example, 30 calves exceeds those for producing 150 calves.

In some of the cow-calf operations private pasture land is also employed. Usually this land is not suited for grain production. This

Table 15: Cow-Calf Production Costs Feeder Price, and Net Margin; at Saskatoon, 1970-1981

Year	Cost/cwt. of Gain 0-450 lbs.[1]	Price of 450 lbs. Feeder Steers[2]	Net Margin
	- - - - - - dollars per hundredweight - - - - - -		
1970	54.40	31.55	-22.85
1971	55.20	32.95	-22.25
1972	56.90	37.04	-19.86
1973	59.90	53.55	-6.35
1974	74.80	40.71	-34.09
1975	83.40	29.48	-53.92
1976	82.00	38.36	-43.64
1977	85.50	39.66	-45.84
1978	84.70	54.48	-30.22
1979	94.20	108.04	13.84
1980	124.00	85.00	-39.00
1981	141.20	76.61	-64.59

[1] Beef Stabilization Plan, Cost of Production Model, Saskatchewan Department of Agriculture.

[2] Agriculture Canada, Livestock Market Review, various annual issues, 1969-1981.

raises the question as to the eventual use of this land if herd size continues to increase, especially in the mixed farming areas. Parcels of land that, for example, are 100 acres or less will likely go unused due to the high farming costs, costs of transporting cattle, high fencing costs, and low carrying rates, unless novel leasing arrangements are developed so that a cattleman can lease numerous parcels of grazing land within an area.

The issue of optimal size for cow-calf operations is crucial for the survival of the cow-calf business in Saskatchewan. In the past, many mixed farming operations existed because of the belief that the

only way to survive was to be diversified, with livestock being a part of the mixed farming complex. This belief coincided with the limitations placed on herd size in public community pastures. However, because of the lack of profitability of the 20-cow herds, this type of operation is diminishing. As a result, to utilize public lands optimally, larger and more specialized herd operations may have to be encouraged. In addition, encouragement should be given to small operators to merge their operations so that they can take advantage of economies of scale (e.g., wintering cattle as a group). Better practices at public pastures (e.g., pregnancy testing in the fall, sorting of calves to achieve uniform lots for sale) adds to productivity per cow but does not guarantee that more cows will be forthcoming.

One method to increase both the herd size and the number of cattle is to intensify the use of private pasture lands and pasture lands leased from the Crown. Through the use of better pasture management, fertilization, reseeding, and irrigation of small acreages, individual ranches can expand their cow herds through increased carrying capacity. This implies that it is perhaps not always optimal to be in mixed farming; rather, through land-use intensification more specialization will result because of economies of scale of units which have greater carrying capacity. As is discussed later, if the goal for agriculture is diversification, it does not necessarily follow that each farm should be diversified. Perhaps more specialization on individual farms (at least at the production stage) leads to a more diversified agriculture.

3. Cattle Feeding

Like the cow-calf operations, feeding of cattle in Saskatchewan has not been profitable in recent years. The general profitability picture of feeding cattle in Saskatchewan is shown in Table 16. On average, 1975 was a profitable year for feeding cattle, as was 1978. Losses were incurred in 1976, 1977, 1979, 1980 and 1981. Thus, over the seven-year period 1975 to 1981, two years were profitable for feeding cattle and five were loss years. This profit profile partly explains the decline in fed cattle in Saskatchewan (284,185 in 1977 compared to 219,880 in 1981). It is interesting to note that the year in which there were positive profit margins in the cow-calf part of the beef industry (1979), there were negative margins in feeding cattle.

Figure 5 plots the net feeder margins for both Saskatchewan and Omaha, Nebraska. Both exhibit a similar pattern. In the United States, as in Saskatchewan, only two of the years (1975 and 1978) in the period 1974-81 had positive margins.

Table 17 shows the break-even feeder-calf prices from the perspective of the cattle feeder. The largest discrepancies between prices actually paid and the break-even buying price for feeder cattle were in 1976 and 1979. In these years the market prices for feeders were roughly 10 cents per pound above the break-even prices.

The impact of feed grain prices on the number of cattle fed is readily apparent from Table 18, from U.S. data. Corn prices more than doubled between 1970 and 1974; correspondingly, the number of cattle on feed dropped by roughly 20 percent from January 1, 1971, to January 1, 1975.

Table 16: Slaughter and Feeder Steer Calf Average Prices, Cost of Gain, Break-Even Price, and Net Margin; at Saskatoon, 1975-81

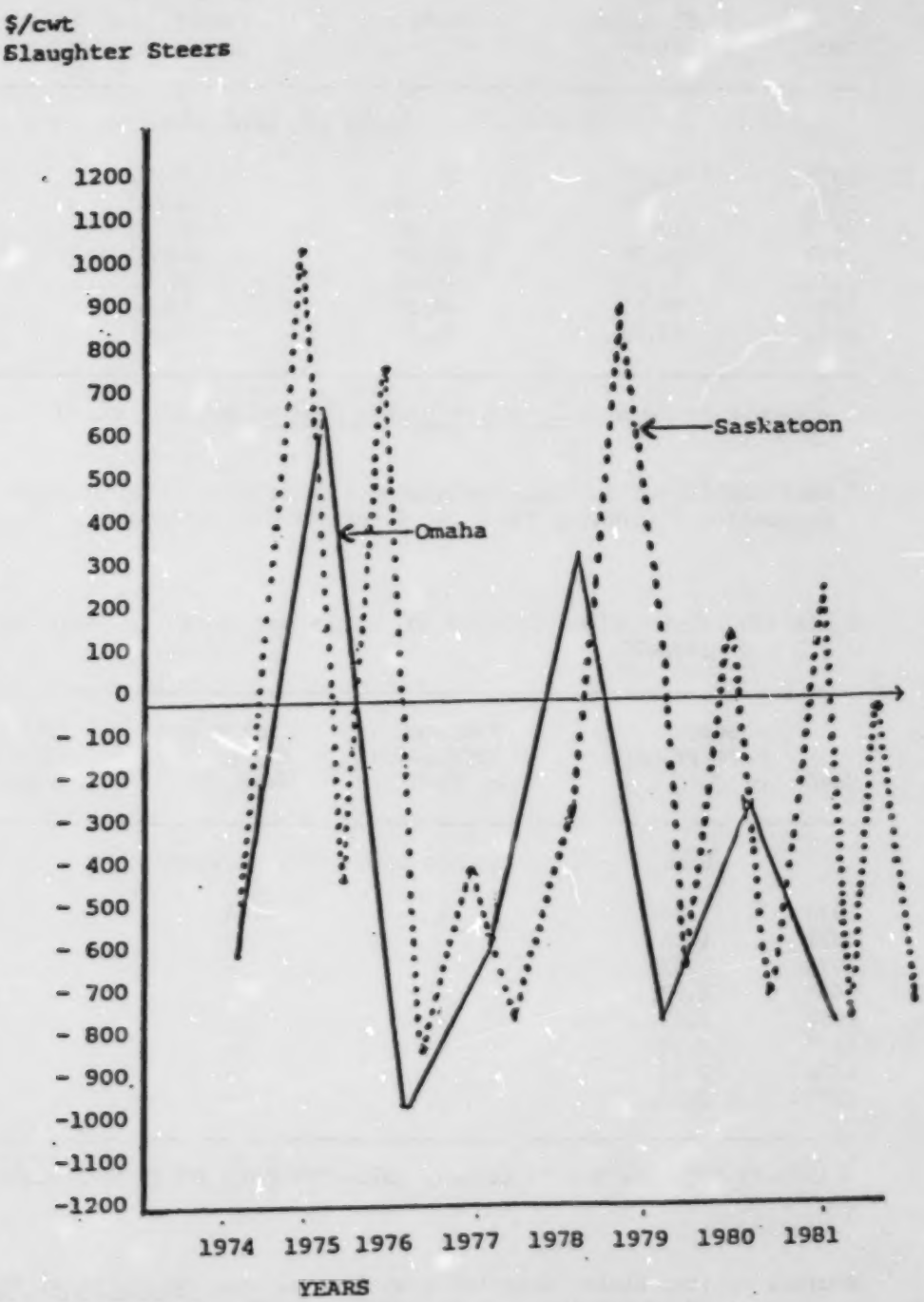
Year, Month	A1 & A2 Slaughter Steers[1]	450 lb. Feeder Steers[1]	Cost/ cwt. of Gain[3]	Break-Even Slaughter Price	Steer Price less Break-Even Price
	dollars per hundredweight				
1975 March	35.77	28.30	53	40.06	-4.29
June	47.21	31.80		41.90	5.31
Sept.	45.61	23.64		37.62	7.99
Dec.	42.18	34.20		43.15	-.97
1976 March	36.54	30.15	51	44.79	-8.25
June	39.31	39.56		45.01	-5.70
Sept.	37.83	33.39		41.78	-3.95
Dec.	39.39	36.84		43.58	-4.19
1977 March[2]	36.35	37.84	50	43.63	-7.28
June	39.66	38.23		43.83	-4.17
Sept.	42.18	40.51		45.01	-2.83
Dec.	43.56	42.06		45.84	-2.28
1978 March	49.06	46.98	47	44.75	4.31
June	66.12	65.89		56.90	9.22
Sept.	62.59	67.79		57.89	4.70
Dec.	61.35	70.29		59.20	2.15
1979 March	78.07	115.68	49	83.93	-5.86
June	78.87	113.09		82.57	-3.70
Sept.	75.16	95.62		73.42	1.74
Dec.	76.38	107.77		79.78	-3.40
1980 March	71.97	89.99	66	78.57	-6.60
June	69.56	76.65		71.59	-2.03
Sept.	76.92	85.42		76.17	.75
Dec.	80.82	87.91		77.48	3.34
1981 March	73.63	82.96	79	81.07	-7.44
June	78.10	77.44		78.18	-.08
Sept.	73.24	72.30		75.49	-2.25
Dec.	68.89	73.76		75.86	-6.97

[1] Agriculture Canada, Livestock Market Review, various annual issues, 1969-1981.

[2] Feeder steer calf weights were increased 400-575 lbs. to 500-600 lbs.

[3] Beef Stabilization Plan, Saskatchewan Department of Agriculture, Cost of Production-Finishing (Costs Per Steer 450-1050 lbs.).

FIGURE 5: NET FEEDER MARGINS SLAUGHTER STEER PRICES



Saskatoon (Quarterly Data)

Omaha (Yearly Data)

Table 17: Slaughter Steer Prices, Cost of Gain, Break-Even Buying Feeder Calf Price, and Feeder Steer Calf Prices; at Saskatoon, 1975-81

Year	Average Steer Slaughter Price	Cost/cwt. of Gain2	Break-Even Feeder Calf Buying Price	Average Feeder Steer Calf Price1
	dollars per hundredweight			
1975	42.69	53.00	33.32	29.48
1976	38.27	51.00	26.70	37.23
1977	40.44	50.00	31.75	39.66
1978	59.78	47.00	71.40	62.74
1979	77.12	49.00	98.23	108.04
1980	74.82	66.00	82.84	85.00
1981	73.47	79.00	68.44	76.61

1 Agriculture Canada, Livestock Market Review, various annual issues, 1969-1981.

2 Beef Stabilization Plan, Saskatchewan Department of Agriculture, Cost of Production (Finishing Costs per Steer 450-1050 pounds).

Table 18: Corn Prices Related to Cattle and Calves on Feed, United States, 1970-77

Year	Average Farm Price of Corn	Average Farm Price of Corn	Cattle and Calves on Feed	Cattle and Calves on Feed,1 January 1
	$/bu.	Change from Previous Year		000's
1970	1.33	+	+	13,190
1971	1.08	-	-	12,770
1972	1.57	+	+	13,912
1973	2.55	-	-	14,432
1974	3.03	+	-	13,642
1975	2.54	-	-	10,167
1976	2.32	-	+	12,943
19772	2.10	-	-	12,567

1 1970-71 data are for 39 states, 1972-1977 data for United States.

2 Preliminary.

Source: United States Department of Agriculture, Agricultural Statistics, 1977, (Washington, D.C.: 1978), p. 28, 311.

Both the absolute level and the degree of instability in grain prices affect the numbers of cattle fed to A1 and A2 grades. The data on Saskatchewan barley prices (No. 1 feed) are given in Table 19 for 1976 to 1980 along with U.S. corn prices. From these data, one can determine whether there is more instability in Saskatchewan feed grain prices than in U.S. prices. The result, based on calculating the coefficient of variation, is given in Table 20. Based on the analysis, greater instability exists in Saskatchewan barley prices than in U.S. corn prices—a negative factor for feeding cattle in Saskatchewan relative to the United States. This is especially true for cattle feeders who are risk-averse.

4. Cattle Finishing

(a) General Characteristics

As the previous data suggest, a large number of Saskatchewan feeder animals are fed in the neighboring province of Alberta. As Table 21 shows, Alberta has a more active beef feeding industry than British Columbia, Saskatchewan or Manitoba. Alberta makes up by far the largest fed cattle numbers in the West (averaging over 40 percent of the Canadian total for the period 1975 to 1980). In 1979 and 1980, Saskatchewan's share was less than 10 percent, a significant decrease from the 15 percent share held in the early 1970s. Roughly 60 percent of Canadian slaughter cattle are fed in the West. Ontario feeds approximately 30 percent of the Canadian total.

Cattle are fed both on farms and in specialized feed lots. Table 22 gives a summary of feedlot size and the percentage of cattle fed by lot size. In 1978, 21 percent of the feedlots had a capacity of 500

Table 19: Saskatchewan Barley Prices and U.S. Corn Prices (Monthly) 1976-80

Year	Month	No. 1 Feed Barley ($/bu.)1	U.S. Farm Price of Corn ($/bu.)	Exchange Rate	Corn Price (Cdn. $)
1976	J	2.027	2.44	1.001	2.44
	F	1.968	12.48	0.994	2.47
	M	1.962	2.50	0.986	2.46
	A	1.940	2.46	0.983	2.42
	M	1.950	2.61	0.980	2.56
	J	1.943	2.74	0.974	2.67
	J	1.857	2.82	0.972	2.74
	A	1.760	2.64	0.985	2.60
	S	1.654	2.60	0.975	2.54
	O	1.650	2.33	0.973	2.27
	N	1.584	2.02	0.986	1.99
	D	1.638	2.24	1.020	2.28
1977	J	1.721	2.34	1.010	2.36
	F	1.748	2.34	1.030	2.41
	M	1.764	2.35	1.051	2.47
	A	1.796	2.31	1.051	2.43
	M	1.840	2.25	1.048	2.36
	J	1.710	2.12	1.058	2.24
	J	1.526	1.88	1.061	1.99
	A	1.353	1.63	1.075	1.75
	S	1.327	1.60	1.073	1.72
	O	1.311	1.67	1.100	1.84
	N	1.36	1.88	1.109	2.08
	D	1.36	1.96	1.100	2.16
1978	J	1.386	2.00	1.113	2.26
	F	1.411	2.03	1.113	2.26
	M	1.423	2.15	1.126	2.42
	A	1.470	2.24	1.142	2.56
	M	1.444	2.29	1.120	2.56
	J	1.377	2.28	1.122	2.56
	J	1.287	2.16	1.125	2.43
	A	1.225	2.00	1.140	2.28
	S	1.200	1.98	1.166	2.31
	O	1.290	1.97	1.183	2.33
	N	1.295	2.02	1.173	2.37
	D	1.285	2.09	1.180	2.47

continued.....

Table 19 continued

Year	Month	No. 1 Feed Barley ($/bu.)1	U.S. Farm Price of Corn ($/bu.)	Exchange Rate	Corn Price (Cdn. $)
1979	J	1.317	2.11	1.190	2.51
	F	1.343	2.18	1.196	2.61
	M	1.362	2.22	1.174	2.61
	A	1.432	2.27	1.146	2.60
	M	1.577	2.35	1.156	2.72
	J	1.677	2.49	1.172	2.92
	J	1.785	2.64	1.163	3.07
	A	1.718	2.54	1.171	2.97
	S	1.937	2.51	1.165	2.92
	O	1.989	2.41	1.175	2.83
	N	2.006	2.27	1.180	2.68
	D	2.017	2.38	1.170	2.78
1980	J	2.050	2.45	1.164	2.85
	F	2.080	2.39	1.156	2.76
	M	2.084	2.40	1.173	2.82
	A	2.076	2.36	1.186	2.80
	M	2.270	2.42	1.173	2.84
	J	2.454	2.49	1.152	2.87
	J	2.633	2.73	1.152	3.14
	A	2.528	2.92	1.159	3.38
	S	2.595	3.01	1.165	3.51
	O	2.638	2.99	1.169	3.50
	N	2.910	3.10	1.186	3.68
	D	2.960	3.19	1.197	3.82

1 The Saskatchewan Wheat Pool Broadcast Street Price for No. 1 Feed Barley.

Source: Keith Hayward, "Feed Grain Price Variability in Canadian and U.S. Markets", (Department of Agricultural Economics, University of Saskatchewan, Saskatoon, April, 1982).

Table 20: Coefficient of Variation: U.S. Corn Prices and Saskatchewan Barley Prices

	Corn	Barley
Coefficient of Variation	.165	.244
Variance of Residuals:		
1 month	.0166	.0078
6 months	.1533	.1001
12 months	.1647	.2185

Source: Keith Hayward, op. cit.

Table 21: Total Slaughter Cattle Marketings by Province of Origin, 1971-80

Year	B.C.	Alta.	Sask.	Man.	West	Ont.	East	Canada
				Number				
1971	35434	1010817	412036	244663	1703950	846166	1041249	2744199
1972	37756	1050680	449970	255826	1794232	847463	1023540	2817772
1973	53443	1040300	404006	249520	1747269	803122	956595	2703864
1974	63198	1122205	448637	275636	1909676	863936	991897	2901573
1975	81026	1368387	505927	319991	2275331	962697	1143185	3418516
1976	69274	1548425	505412	346202	2469313	1036280	1264438	3733751
1977	67268	1612755	468473	372635	2521131	1158839	1398328	3920459
1978	68133	1412107	363837	334188	2178265	1086870	1332410	3510675
1979	57198	1275377	273331	269491	1875397	953922	1164497	3039894
1980	66840	1267246	283847	260848	1878781	967720	1207073	3085854
				Percentage Shares				
1971	0.01	0.37	0.15	0.09	0.62	0.31	0.38	
1972	0.01	0.37	0.16	0.09	0.63	0.30	0.36	
1973	0.01	0.38	0.15	0.09	0.63	0.30	0.35	
1974	0.02	0.39	0.15	0.09	0.65	0.30	0.34	
1975	0.02	0.40	0.15	0.09	0.66	0.28	0.33	
1976	0.02	0.41	0.14	0.09	0.66	0.28	0.34	
1977	0.02	0.41	0.12	0.10	0.65	0.30	0.36	
1978	0.02	0.40	0.10	0.10	0.62	0.31	0.38	
1979	0.02	0.42	0.09	0.09	0.62	0.31	0.37	
1980	0.02	0.41	0.09	0.08	0.61	0.31	0.39	

Source: Dawson Dau & Associates.

Table 22: Categories of Feedlot Size, Saskatchewan, 1978

Size Category	Percentage of Total Number of Feedlots	Percentage of Cattle on Feed
100-499	79	40
500-1000+	21	60

Source: The Sibbald Group, p. 38.

head or more and they contained 60 percent of the cattle on feed (lots feeding less than 100 head were not included in the survey).

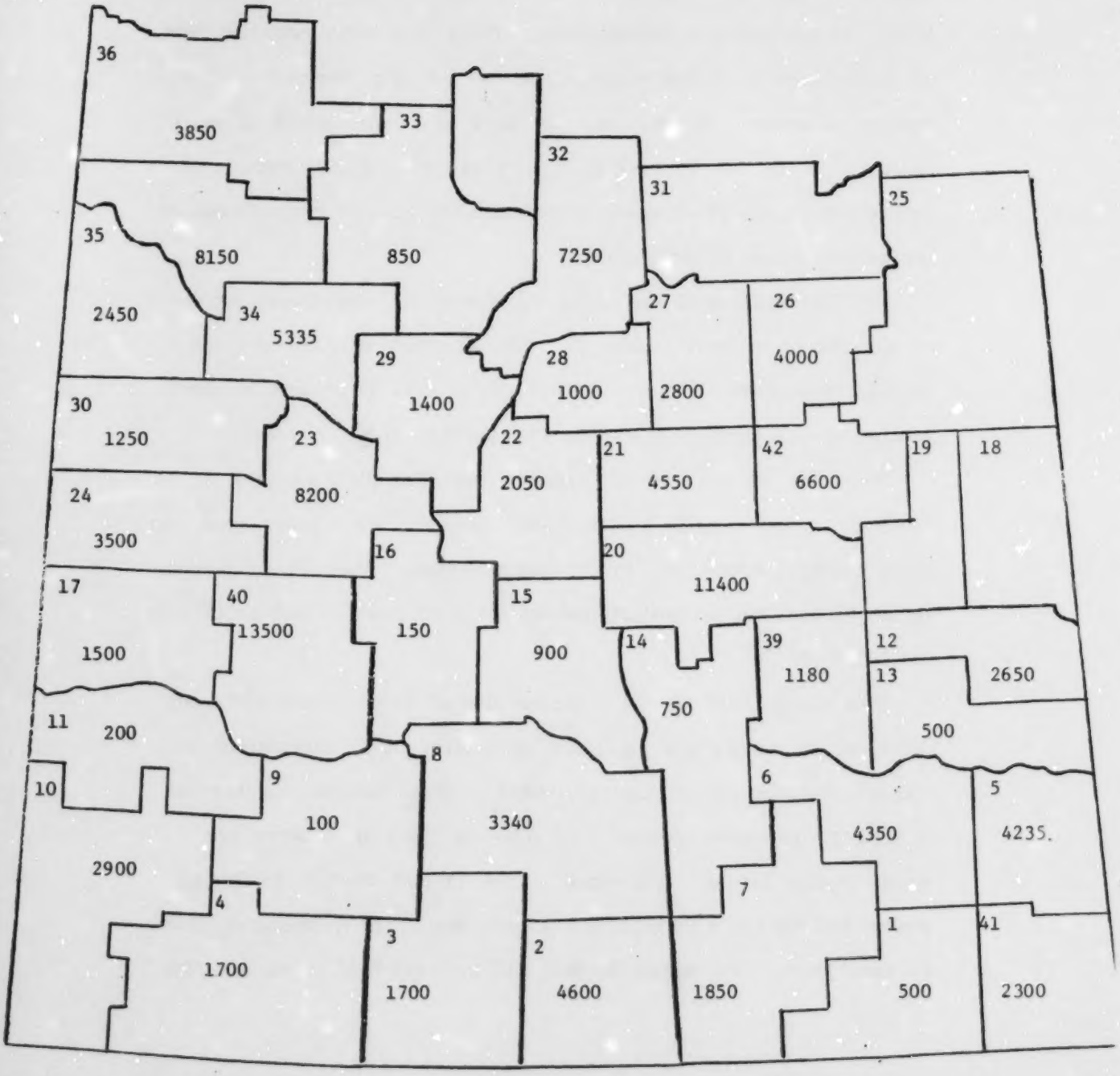
Figures 6 and 7 show the capacity of feedlots in Saskatchewan by district, and the level of feedlot utilization, respectively. Note that the capacity of feedlots and the level of utilization is the lowest in southwestern Saskatchewan. There is a heavy concentration of cattle feeding in the Moosomin, Yorkton, Biggar, Wynyard and North Battleford areas. In addition, (1) there is a large amount of unused capacity in the cattle feeding enterprise, and (2) the numbers of cattle fed in specified areas of Saskatchewan are not proportional to the calves raised in these areas.

The distribution of beef cows and steers in Saskatchewan compared to Alberta is given in Table 23. The southern regions have the largest proportion of cows. However, in Alberta 57 percent of steers are fed in the south, compared to 45.1 percent in Saskatchewan.

There are no data on the numbers and size distributions of feedlots through time in Saskatchewan. However, the numbers appear to be declining, as they are in the United States. Table 24 shows that, in the United States, feedlot numbers declined from 177,317 in 1970 to 131,929 in 1977.

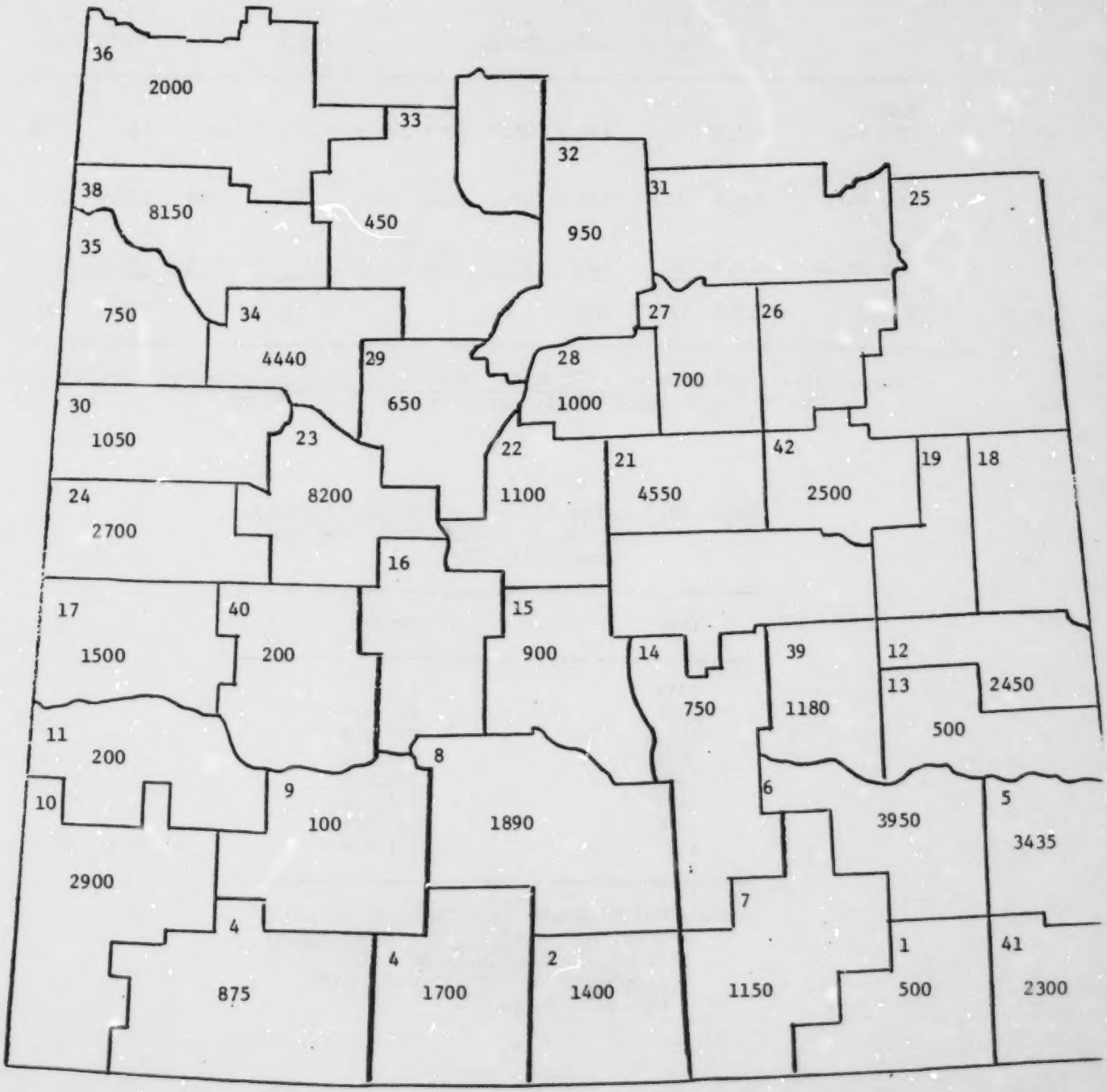
Even though data on the relative size of feedlots for different provinces in Canada are difficult to obtain, it is interesting to compare Saskatchewan to Alberta, where a large feeding industry has developed. The data suggest the sizes of lots in Alberta are substantially larger. For example, the largest feedlot in Saskatchewan in 1978 had a capacity for 11,400 head, with an operating level of 8,000 head. The second-largest had an 8,000 head capacity. The

Figure 6: Capacity of Saskatchewan Feedlots, by Districts (Numbers represent total one-time capacity)



Source: Saskatchewan Summary of 1978 Feedlot Survey by Agricultural Extension Districts

Figure 7: Level of Feedlot Utilization (Numbers represent estimated number of cattle on feed)



Source: Saskatchewan Summary of 1978 Feedlot Survey by Agricultural Extension Districts

Table 23: Distribution of Beef Cows and Steers in Alberta and Saskatchewan

	Saskatchewan					Alberta			
	Beef Cows		Steers			Beef Cows		Steers	
	000's	% of Total	000's	% of Total		000's	% of Total	000's	% of Total
South CDs 1-8	635.8	52.4	178.7	45.1	South CDs 1-6,9	685.1	43.2	506.2	57.5
Central CDs 9-13	288.6	23.8	110.4	27.8	Central CDs 7,8	311.0	19.6	148.0	16.8
North CDs 14-18	288.1	23.7	107.0	27.1	North CDs 10-15	587.9	37.1	226.8	25.7
Total	1,212.5	100	396.1	100		1,584.0	100	881.0	100

Source: Statistics Canada, 1976 Census of Agriculture, Saskatchewan, catalogue No. 96-808 (Ottawa: 1977), "Livestock on Census Farms."

Table 24: Number of Feedlots Finishing Cattle in the 23 Major Cattle Feeding States, 1970-77

Year	Number
1970	177,317
1971	165,289
1972	154,514
1973	146,384
1974	140,651
1975	136,696
1976	132,535
1977	131,929

Source: United States Department of Agriculture, Livestock and Meat Statistics, statistical bulletin No. 522, supplement 1971-1977 (Washington, D.C.: 1977), p. 50.

total capacity for the five largest feedlots combined was 31,600 head.[22] This compares to an 18,000 head feedlot in Alberta in addition to many lots over 10,000 head.[23] The data are given in Table 25. Also, in Alberta at least one feedlot operates a packing plant and in addition produces hogs and broilers.

(b) Economies of Scale in Cattle Finishing

In feeding cattle there appear to be substantial economies of scale, whether cattle are backgrounded, finished or both. The size of feedlots in parts of North America is large. In New Mexico, for example, in 1977 only 3 out of 40 feedlots fed under 1,000 head (Table 26); the largest lots dealt only in finished cattle (T ; and 7 out of 44 feedlots had a capacity of more than 10,000 .

As the data suggest (including Figures 8 and 9) there are substantial economies of scale in cattle feeding. The most efficient scale appears to be at least 1,000 head capacity with per-unit costs dropping until at least 10,000 head is reached.[24]

---

[22] The Sibbald Group, op. cit.

[23] One of the authors visited the largest feedlot in Alberta, which in 1983 had a feeding capacity of 30,000 head.

[24] Many U.S. feedlot operators contend that economies of scale still are not exhausted, even at the 10,000 head size. It should be noted that one of the larger feedlots in the U.S., Monfort's of Colorado, feeds over 80,000 head at any one time with a 120-day feeding period. This represents a yearly total of 240,000. At this scale only four feedlots would be needed in Saskatchewan to feed all of the calves raised here. Only one would be needed to feed the cattle currently fed in Saskatchewan. Whether this would be socially desirable for the province is not debated here. Also, because of feed supplies, etc., such a large lot may well experience dis-economies of scale. The Colorado example is merely presented to put the economies of cattle feeding in North America in perspective.

Table 25: Feedlot Operators and Capacities at Selected Locations in Saskatchewan and Alberta, 1978

Saskatchewan	Alberta
1. Art Edwards - C.K.W. Feeders Windthorst. Capacity 2,500 head	1. Ian Chisholm - Manager Western Feedlots, Strathmore Capacity 18,000 head
2. Frank Weeks - Biggar Capacity 8,000 head	2. Ben Thorlakson - Manager Thorlaksons Feedyards, Airdrie. Capacity 15,000 head
3. Ross Reynolds - Poundmaker Feeders Lanigan. Capacity 7,000 head	3. Leo Doenz - Dryland Feeders Ltd. Capacity 8,000 head
4. Ernie Carlyle - F & B Feedlot Wadena. Capacity 4,000 head	4. Garnet Altwasser - Lakeside Feeders Ltd., Brooks. Capacity 2,500 head Jim Wilfley
5. Bert Mennie - Kelvington. Capacity 500 head	5. Manager - Highway 52 Feeders Raymond. Capacity 15,000 head
	6. Dave Glen - President Summerview Feeders Association Capacity 4,000 head
Barley Growers.	7. Garnet Hammer - President - Olds Feed 8,000 head per year
	8. Bill Olefson - Southern Feeds, Lethbridge. Capacity 2,000 head
	9. John Pahara - Feeder, Lethbridge. 3,000 head capacity.
	10. Dick Grey - Valley Feeders, Lethbridge. Capacity 12,000 head.
	11. Harry Haney - Haney Farms. Iron Springs. Capacity 3,000 head.
	12. Tom Butterfield - Feed, Ponoka. Capacity 3,000 head

Source: The Sibbald Group, op. cit., Appendix A(1). It should be noted that in 1983 the size of feedlots changed. For example, Western Feedlot had at least a 30,000 head capacity while Lakeside Feeders had at least a 14,000 head capacity.

Table 26: Number of Feedlots that Finished Cattle in New Mexico, Capacity, 1971-77

Year	Total Number of Lots[1]	Less than 1,000 Head	1,000 Head or more
1971	68	22	46
1972	62	19	43
1973	54	8	46
1974	48	7	41
1975	44	5	39
1976	40	3	37
1977	40	3	37

[1] These include feedlots that both background and finish, but not feedlots that only background.

Source: United States Department of Agriculture, op. cit.

Table 27: New Mexico Cattle Feedlots, by Type and Capacity, 1977

Maximum One-Time Capacity	Feeder to Finish (FF)	-Background and Finish- Turned Out Finish Only (BFFO)	Turned Out Both (BFB)	Background Only (BF)	Total
		number			
Less than 1,000	0	3	3	4	10
1,000-4,999	2	5	5	4	16
5,000-9,999	1	4	1	1	7
10,000 or more	2	7	2	0	11
TOTAL	5	19	11	9	44

[1] Does not include six feedlots which failed to respond to survey.

FIGURE 8: SHORTRUN COST CURVES FOR FEEDING CATTLE WITH SPECIFIED COMBINATIONS OF EQUIPMENT

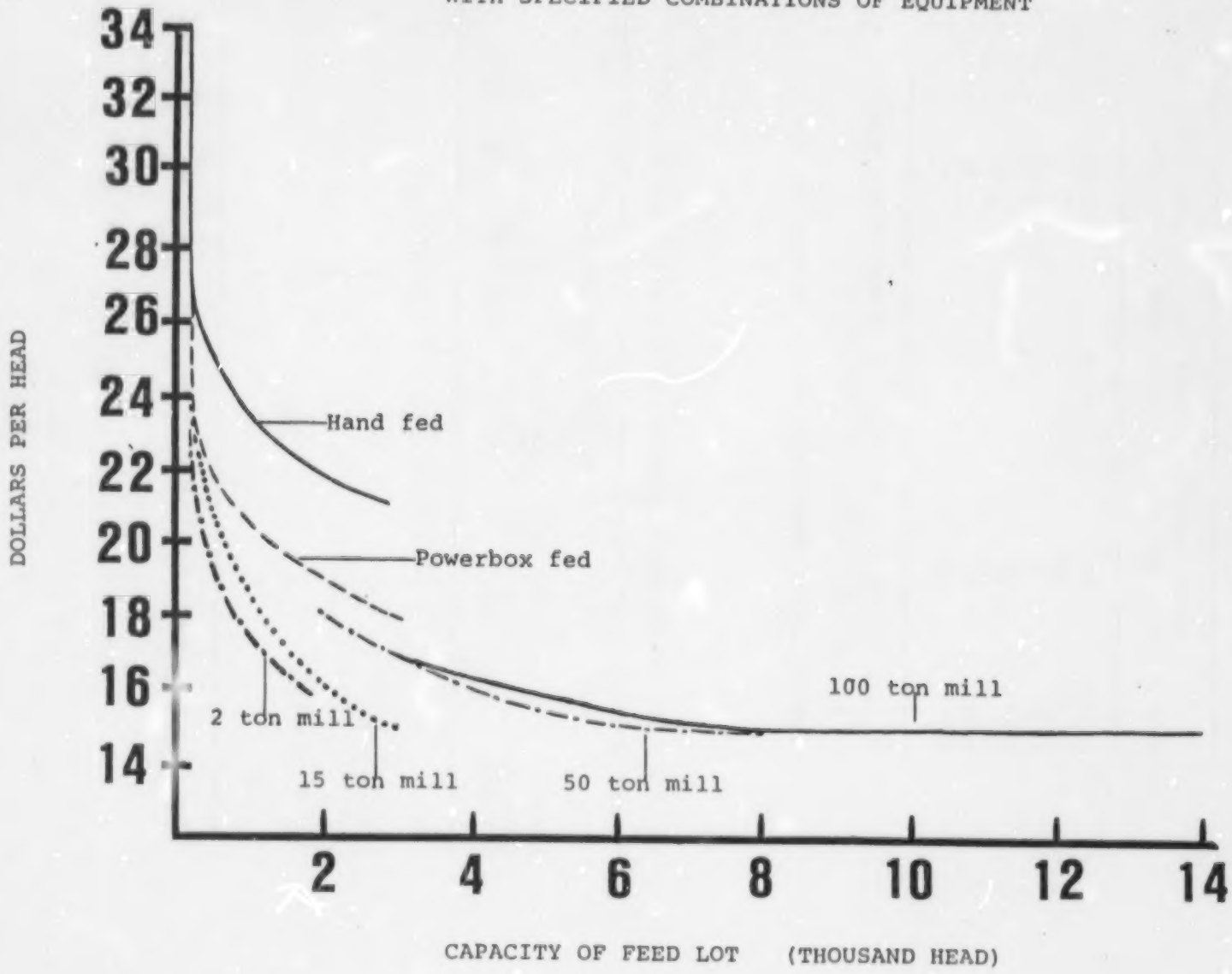
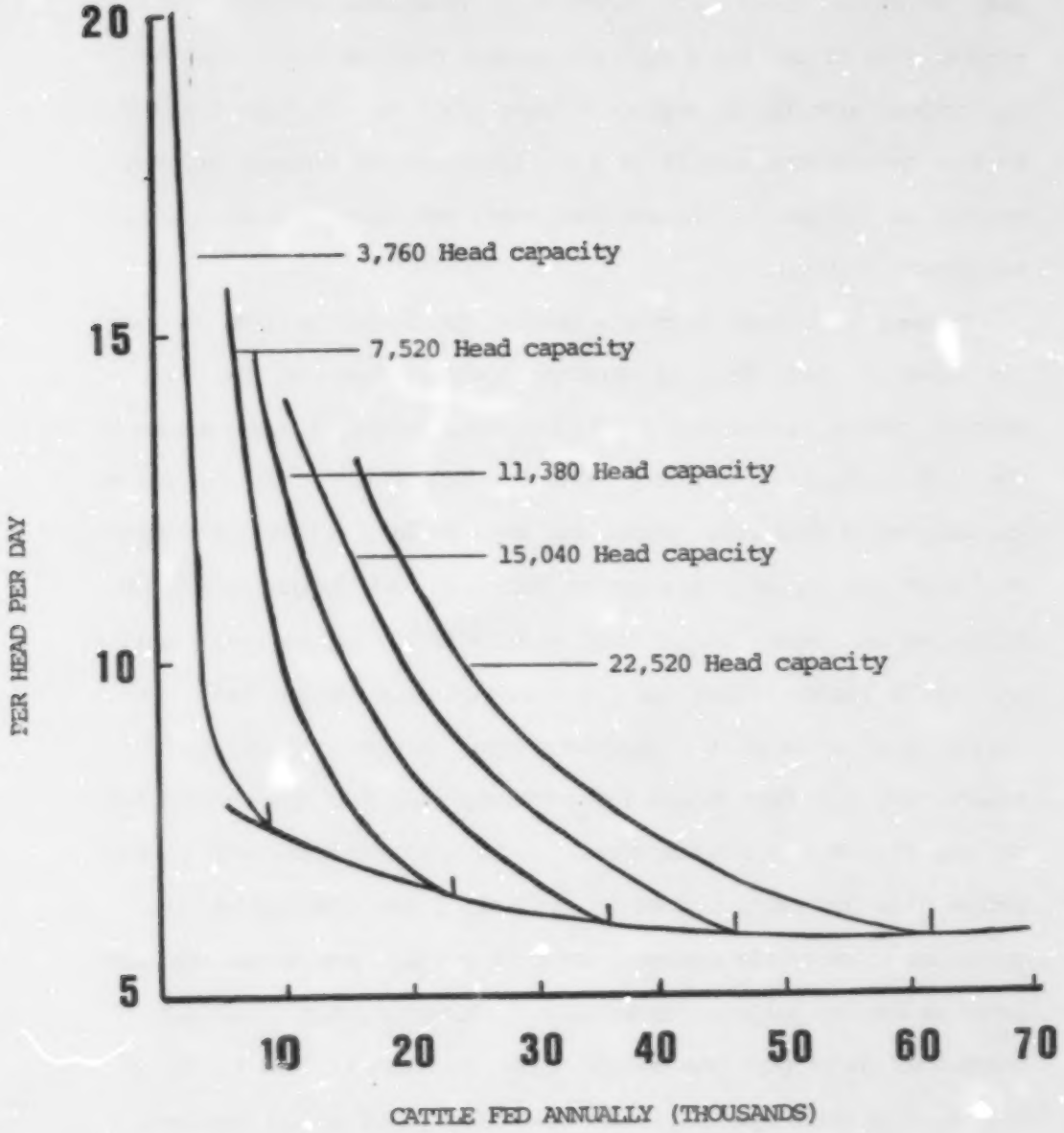


FIGURE 9: ECONOMIES OF SCALE CURVE FOR NON-FEED COSTS OF OPERATING MODEL FEEDLOTS



The cost data given in Figures 8 and 9 need further elaboration. First, they are constructed assuming a given level of management. The cost structure itself is a function of management ability. The minimum size of lot for a superior manager might be 5,000 head, while the optimal size for an average manager might be less than 500 head. Feeding cattle economically is a capital-intensive enterprise, where capital is defined to include both money and human capital (i.e., management ability).

Economies of scale in cattle feeding are needed in order to cover the costs of such items as watering bowls, a hospital for sick animals, proper feed-mixing facilities and a proper size and design of the feedlot itself. Pecuniary economies include the search for market information on feed grain prices and availability, prices and location of feeder cattle, long-term market forecast, and changes in the fat cattle market. Also, larger lots can effectively bid on feeder cattle and obtain higher prices for fat cattle. Even though there are economies of scale of the pecuniary type, it does not necessarily follow that each farm should independently seek this information and pay for it from its own resources. Perhaps governments could greatly reduce this information cost by collecting key information and providing it to cattle feeders. In this way only one rather than many entities could collect information. Alternatively, feedlots themselves could pay into a fund where the fund is used to pay a private firm which specializes in the economies of cattle feeding.

Simpson and Farris suggest:

> The trend toward larger feedlots can also be attributed to their greater efficiency, which means reduced operating expenses as well as lower fixed costs. Furthermore, larger lots can afford to employ skilled managers who are

> specialized in buying cattle and other inputs, and who have the knowledge and ability to use modern cattle marketing techniques. A most important consideration is that larger lots result in economies of size since they feed more cattle. The 1980 study by Simpson, Baldwin, and Baker shows, for example, that the nonfeed operating costs per head fed for a traditional open-lot system operating at 90 percent of capacity are $49, $18, and $17 for the 500-, 5,000- and 10,000-head capacity units, respectively.[25]

A major input in feeding cattle is feed grains. Because of its price volatility plus the volatility in interest rates and fat cattle prices, feeding cattle as a specialized operation is a high-risk business. Therefore a high level of management is needed to operate this business successfully. Forward planning is of critical importance. For example, instead of buying feed and cattle and selling cattle on a daily basis, all in an unhedged position, proper risk management strategies suggest some hedging should be used (e.g.: forward contracting of barley, forward selling to packing plants,custom feeding). Managing risk is the key to a successful cattle feeding venture.

5. The Alberta Feeding Industry

Alberta accounts for the largest share of beef carcasses in Canada. This raises the question as to why more cattle are fed in Alberta than in other provinces. For the 1976-78 period, beef carcasses grading A, B and C in Alberta averaged 1,278,257 head, or 44.5 percent of national gradings, up 27 percent from the 1974-1976

---

[25] J.R. Simpson and D.E. Farris, The World Beef Business (Ames, Iowa: Iowa State University Press, 1982), p. 55.

three-year period. Steer and heifer slaughter in Alberta has increased in all regions from the late 1960s to the 1970s. However, the increase in southern Alberta has been the most dramatic (Table 28). Steer and heifer marketings from Census divisions (CDs) 1, 2 and 3 (extreme south area) have increased by an average of 304,252 head or 132 percent from the 1967-69 period to the 1976-78 period. For the 1976-78 period, this region accounted for 42.6 percent of Alberta's steer and heifer slaughter, followed by CDs 4,5 and 6, at 21.9 percent, and CDs 7, 8 and 9, at 19.1 percent.

A large percentage of the cattle feeding operations are located in or near irrigation districts, in Southern Alberta. The major irrigation districts in Alberta are shown in Figure 10.

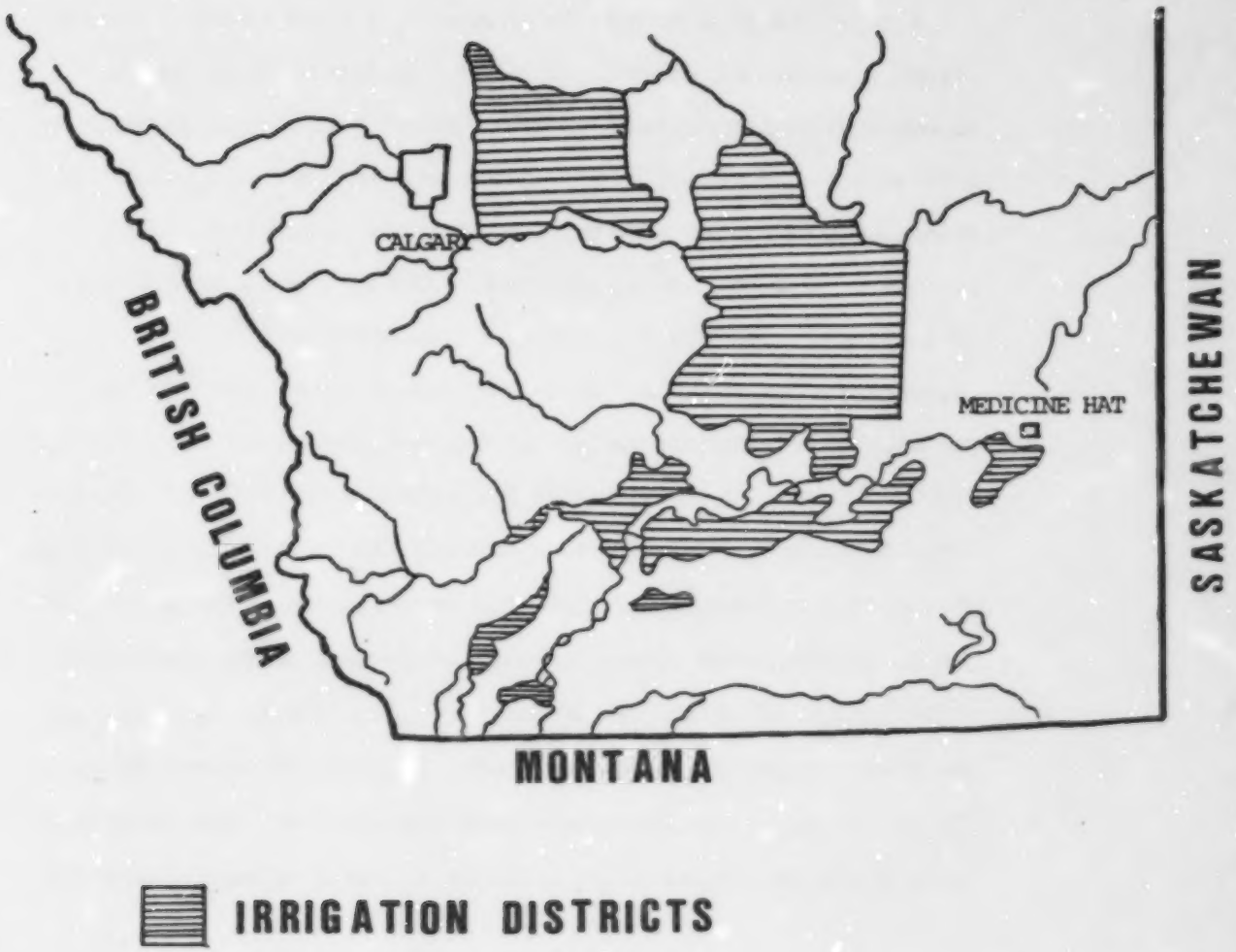
Some of the important characteristics of the Alberta feeding industry which should be understood when assessing the potential for

Table 28: Alberta Steer and Heifer Slaughter, Census Division

Census Divisions	1967-69 Average # head	Percentage of Slaughter	1976-78 Average # head	Percentage of Slaughter	Change 1976-78 to 1967-69
1,2 & 3	229,984	29.5	534,236	42.6	+132.3
4,5 & 6	208,881	26.8	273,893	21.9	+ 31.1
7,8 & 9	163,940	21.1	239,324	19.1	+ 46.0
10,11 & 14	127,529	16.4	139,906	11.2	+ 9.7
12, 13 & 15	48,665	6.2	65,148	5.2	+ 33.9
TOTAL	778,999	100.0	1,252,507	100.0	+ 60.8

Source: Alberta Agriculture, Statistics Branch, Edmonton, Alberta

Figure 10: Location Of Major Irrigation Districts In Alberta



increased cattle feeding in Saskatchewan are as follows.[26]

(a) Marketing[27]

A major change occurring in Alberta is a trend toward marketing directly to packing plants. In 1966, 59.0 percent of cattle slaughtered in Alberta were delivered directly to packing plants. By 1978 this had increased to 85.7 percent; thus, only 14.3 percent of slaughter cattle were marketed through public stockyards. Over 95 percent of slaughter cattle marketed in CDs 1, 2 and 3 went directly to packing plants. The proportion of steers and heifers going directly to Saskatchewan plants for slaughter in 1980 was 76 percent,[28] and with introduction of the Beef Stabilization Program and its central selling activity this has increased further. In addition, there are more Alberta packers to actively bid for Alberta cattle than is the case in Saskatchewan. As will be discussed in the section on packing plants, Saskatchewan has only two packers of any significance, while Alberta has six. The direct selling by Alberta feedlots plus the number of packing plants could have a significant upward effect on fat cattle prices in Alberta vis-a-vis Saskatchewan. One hypothesis is that this provincial price differential may be a major reason for

---

[26] Some of the information is from secondary data sources; further description and analysis is contained in a study by C. Carter and A. Schmitz, "The Economics and Location of Cattle Feeding: Alberta vs. Saskatchewan" (study prepared for Agriculture Canada, August 1983).

[27] Lyle Smith, Economics of Feeding Cattle in South Central & Southern Alberta, (Edmonton: Alberta Agriculture, 1980).

[28] Saskatchewan Agriculture, Saskatchewan Cattle Marketing Report, (Regina: December 1980), p. 6

feeding cattle in Alberta rather than Saskatchewan.

The large lots in Alberta usually offer their cattle for sale on a specific day each week. Packers send a buyer to examine the cattle and then submit a sealed bid to the feedlot. The bids are opened at a set time and the cattle usually go to the highest bidder. Most large feedlots belong to Canfax, the Canadian Cattlemen's Association market information system. Producers pay a fee based on the number of cattle on feed and receive weekly market summaries. In addition, they are obligated to report prices they receive for direct sales. Availability of current information to producers can enhance their bargaining power and is another important factor in achieving higher fed cattle prices in Alberta.

(b) The Silage Base

The majority of cattle feeding in southern Alberta have a silage base, usually on irrigated land and located at the feedlot site. Barley production is the major silage source, although corn is used in some southern locations, as are byproducts from sugar refining and potato processing. However, the latter are minor relative to barley silage. Most of the feedlots do not produce enough dry barley to be self-sufficient; instead they buy a portion of their barley locally in an active barley market. This, coupled with the hypothesis that barley silage (when integrated with cattle feeding) is the highest value crop from irrigation, explains why cattle feeding and irrigation complement one another. If this is true, Saskatchewan could, for example, develop a buoyant cattle feeding industry in the Outlook area.

Figures 11 and 12 clearly show that Alberta's barley production is greater than wheat but Alberta ships more wheat out of the province than barley. Compare these figures with similar statistics in Figure 13 for Saskatchewan. Saskatchewan barley production is much less, while its wheat production and exports are much greater. Also, it appears that barley on irrigation yields greater returns than crops such as wheat in some areas (Table 29). In summary, Alberta has a large feed base, which complements its cattle feeding. Irrigated silage appears to be the key ingredient.

(c) Ownership of Cattle

There are many types of feedlot organizations in Alberta. Generally, the lots exceeding 2,500 head do some custom feeding. Many of the large lots exceeding 8,000 head have less than 25 percent of their own cattle on feed. Often This figure is below 15 percent.

Many types of people put cattle in custom lots, though the number of city investors such as doctors and lawyers has declined dramatically since the late 1960s. Most of the cattle put on feed on a custom basis are owned by local ranchers and grain farmers. For example, the Alberta Barley Growers' Association feeds cattle in custom lots.

It was found that grain farmers themselves generally do not buy cattle and attempt to finish them. Instead, they buy cattle and place them in custom lots—which is quite different from the Saskatchewan scene. Many cow-calf ranchers do not feed out their own cattle. Some of their calves are sold to others, but a large percentage, at least in the south, are custom fed. There is a division of specialization

Figure 11: Alberta Principal Field Crop Production

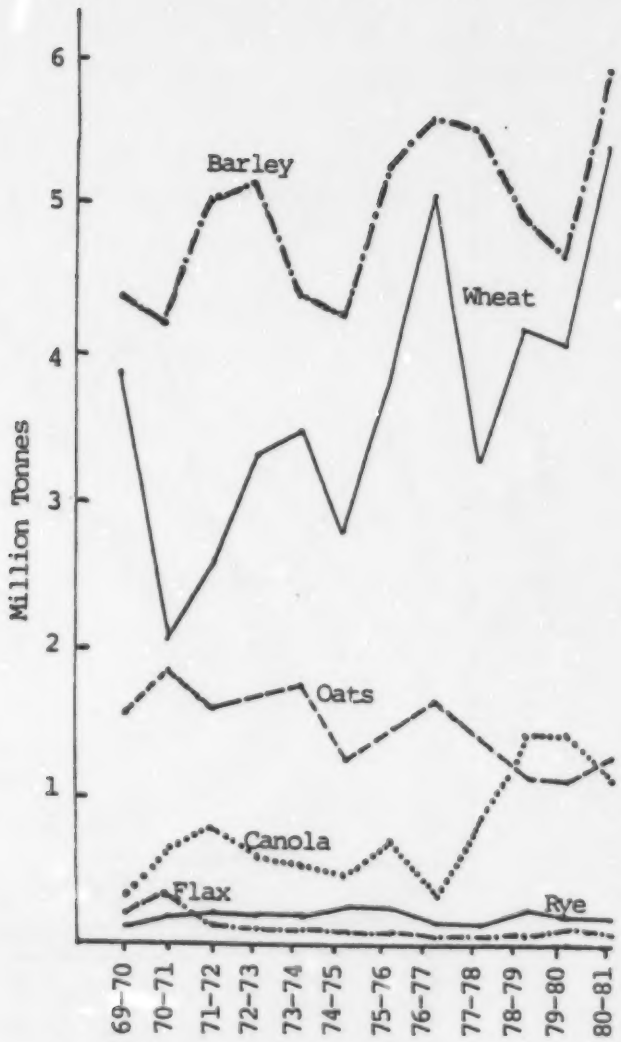


Figure 12: Alberta Primary Net Shipments of Grain

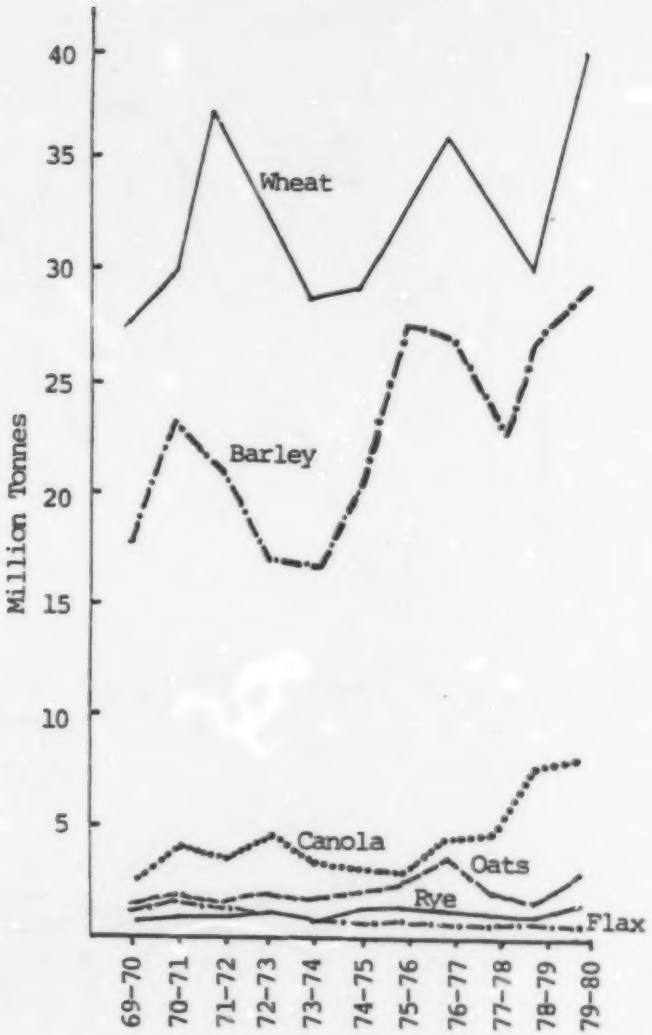
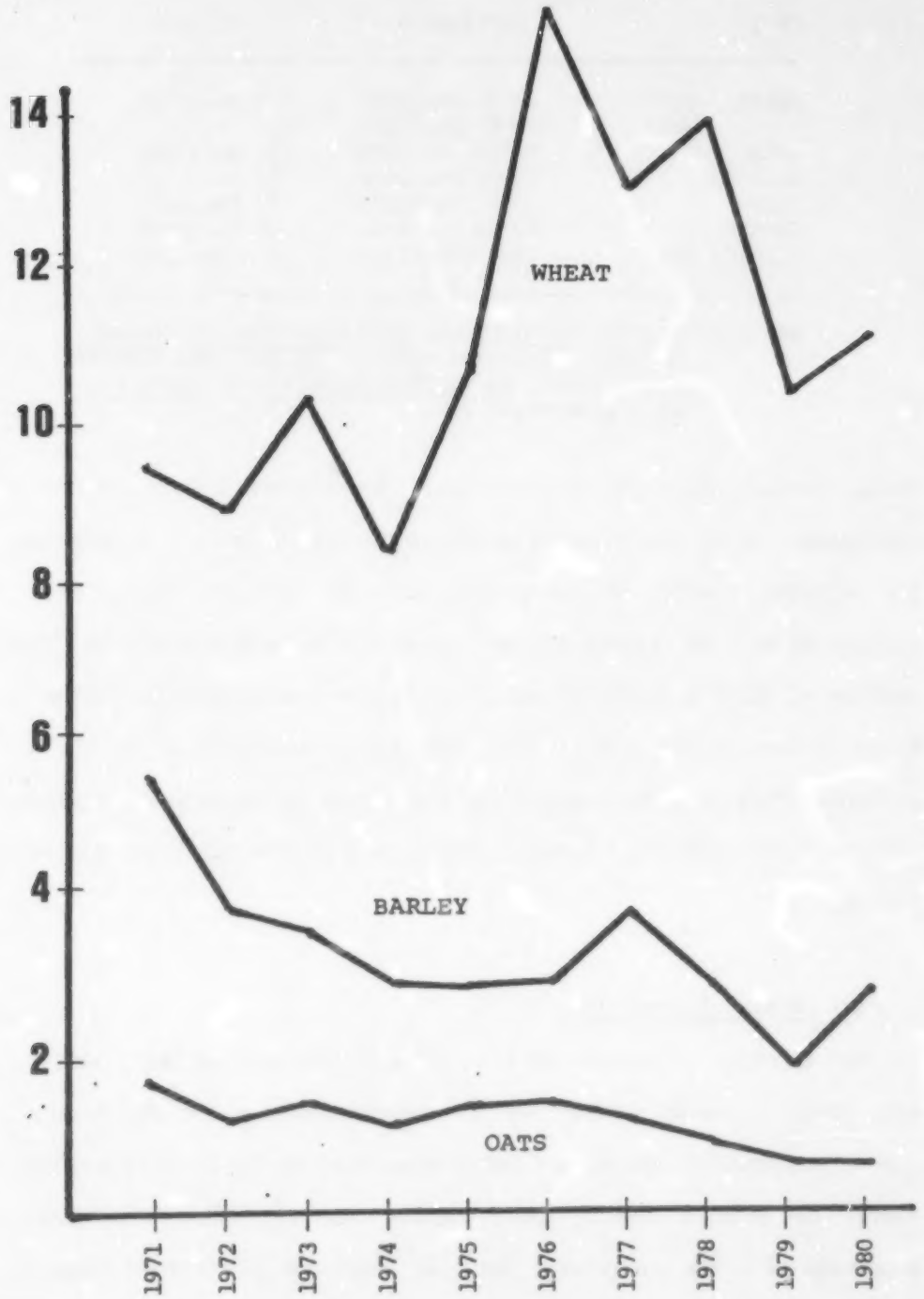


FIGURE 13: Saskatchewan Production of Principal Field Crops



Source: Government of Saskatchewan, Economic Review, 1980, Saskatchewan Bureau of Statistics

Table 29: Average Irrigated and Dryland Crop Yields, Southern Alberta, 1981

Crop	Irrigated	Dryland
Wheat - hard	40-45 bu./acre	38 bu./acre
- soft	65-85 bu./acre	—
Oats	90-100 bu./acre	65 bu./acre
Barley	70-90 bu./acre	55 bu./acre
Flax	30-35 bu./acre	25 bu./acre
Canola	30-45 bu./acre	26 bu./acre
Alfalfa hay	3-4 tons/ac.	2.4 tons/ac.

Sources: Alberta Agriculture, Concensus Cost and Returns Studies (Edmonton: various issues); and Alberta Agriculture, Agriculture Statistics Yearbook, 1981 (Edmonton: 1982).

among cow-calf ranchers, dryland grain farmers and custom feedlot operators. Given the tremendous growth in cattle feeding in Alberta, the majority of which is custom feeding, a good deal of honesty and efficiency must be present in the custom cattle feeding business. The success of Alberta feedlots and their reliance on custom feeding as a means of controlling risk on both feed inputs and finished cattle is evident. This provides support for the hypothesis that large feedlots must feed the majority of their cattle on a custom basis in western Canada.

(d) Scale of Operation

The majority of custom lots in Alberta are substantially larger than those in Saskatchewan (see the previous discussion and data). One of the feedlot operations feeds more than 30,000 head at a given time. The general feeling among feedlot owners in Alberta was that economies of scale are present until at least the 10,000-head capacity

level. This is consistent with the study by Simpson and Farris cited earlier. If the pens are designed correctly at the beginning, the optimal size exceeds the 10,000-head level.

The benefits to a province of maintaining a diversified agriculture had historically been recognized by politicians, economists, the business community and the public at large. Public policy has often tried to develop and foster diversified farms in pursuit of the goal of a diversified agriculture.

The complexity of management, the demand for leisure time, the high labor input in small livestock feeding operations, and the economies of scale in cattle feeding suggest that cattle feeding must occur on a scale which is economical. Specialized farms in grain and specialized cattle feeding operations can lead to a diversified agriculture. These trends have been followed by developments in the Alberta industry and it is hypothesized that, unless these scale economies are also captured in Saskatchewan, the current cattle feeding industry will disappear over the next decade or so.

D. THE MEAT PACKING INDUSTRY IN SASKATCHEWAN

1. Historical Perspective

Each year, thousands of head of cattle leave the province of Saskatchewan to be fattened and slaughtered elsewhere. Saskatchewan has approximately 26.7 percent of the nation's beef cow herd, yet only accounts for 8.8 percent of the country's federally inspected slaughter.[29] The majority of feeder cattle leaving the province go to either Ontario or Alberta for feeding and eventual slaughter. Of the cattle remaining in the province to be fed, 61 percent are slaughtered here. Of the rest, the majority go to Manitoba (24 percent), and Alberta (7.4 percent), with significant numbers also moving to Ontario and the United States.

Saskatchewan lagged behind Alberta and Manitoba in the development of a meat packing industry. In the early 1900s, most Saskatchewan livestock was shipped to Winnipeg for slaughter. Saskatchewan's slaughter capacity consisted of small, local abbatoirs. The first slaughter plant on a larger scale was built by the U.S.-owned Armour Corporation in Regina in 1900. In 1912, the Ironsides Plant was opened in Moose Jaw, which was taken over by Swifts in 1923. In 1917, Burns entered the meat packing industry in Prince Albert.[30]

Despite these entrants to the industry, meat packing never really got off the ground in Saskatchewan, relative to the other prairie provinces. Although Saskatchewan had twice the cattle numbers of

---

[29] Senate Standing Committee on Agriculture, p. 50.

[30] H.E. Bronson, "The Developing Structure of the Saskatchewan Meat Packing Industry" (Ph.D. thesis, University of Saskatchewan, 1965), p. 20.

Manitoba, and roughly the same number as Alberta, the other two provinces slaughtered far greater numbers of cattle throughout the inter-war period.

Nationally, the meat packing industry has been characterized by a high degree of concentration. Canada Packers was formed in 1928 by an amalgamation of smaller firms. Canada Packers, Burns and Swifts have been the dominant firms at the national level. As an attempt to counter the economic power held by these firms, Saskatchewan producers began operating a co-operative packing plant in Saskatoon in 1932. The operation went out of business in 1938 when its operations were taken over by Intercontinental Packers, a new meat packing firm that was to become important on a regional level. Thus, in 1942 there was a total of four federally inspected plants in Saskatchewan: Burns in Prince Albert and Regina, Swifts in Moose Jaw, and Interoon in Saskatoon.[31]

The Saskatchewan meat packing industry changed little from the end of World War II until the mid-1970s. Swifts in Moose Jaw shut down in 1952 and Canada Packers started operations there in 1975,[32] Interoon opened a plant in Regina. The market share of the major packers in 1961 is shown in Table 30. The total volume of sales exceeded $50 million. Two companies with four plants at three separate physical locations accounted for 80 percent of the output of meat in Saskatchewan, while four firms consisting of six plants in four

---

[31] Ibid., p. 45.

[32] Senate Standing Committee on Agriculture, p. 51.

Table 30: Volume of Meat Packing Plants in Saskatchewan, 1961

Firm	Sales per Firm	Percentage of Total
Intercontinental (Saskatoon & Regina)	over $25,000,000	= 50
Burns (Prince Albert & Regina)	over 15,000,000	= 30
Canada Packers	over 3,000,000	= 6
Empire	over 2,000,000	= 4
Others (e.g., Treens, Holmes, Dycks, Mid-West)	under 1,000,000	= 10

Source: J.B. Morris and H.J. Zilm, An Examination of the Saskatchewan Livestock-Meat Packing Segment (Regina: Saskatchewan Department of Agriculture, October 1972).

distinct locations produced 90 percent of the meat output in terms of value.

The 1970s was a period of rapid change in Saskatchewan. Burns closed its plants in Regina and Prince Albert and Intercon closed down its Regina slaughtering operations. This left Intercon in Saskatoon and Canada Packers in Moose Jaw (the latter built a new plant in 1975) as the only large-scale cattle slaughtering operations in Saskatchewan.[33] In view of these shifts, Alberta has increased in relative importance in cattle slaughtering. Manitoba has shown a significant decline in importance, while Saskatchewan has declined marginally.

In the early days of the Canadian economy, the meat packing industry tended to develop close to the terminal markets due to the

[33] Senate Standing Committee on Agriculture, pp. 51-52.

importance of rail transportation. Thus, Winnipeg developed as a major meat packing center on the prairies. Since World War II, though, various factors have favored the establishment of meat packing facilities close to the source of supply of cattle, especially the increased importance of trucking as a means of hauling livestock. However, the railway freight rate structure has had the opposite effect since it favored the shipment of live animals rather than carcasses from west to east.[34] As well, the cutback in cattle supplies in the 1970s has caused meat packers to want to locate close to a major source of supply to ensure a steady input of cattle.

The cost of transporting live animals includes (in addition to freight charges), the costs associated with tissue shrink, bruising and death. To the extent that the packing industry is unable to shift these costs to farmers (through various discounts, etc.) then these costs will be included as part of the transportation cost factor in determining the plant location. In addition, the cost of tissue shrink varies with the price of cattle: a 2 percent loss on a $500 animal is $10, but is $20 on a $1000 animal. The higher prices translate into larger absolute incentives to slaughter livestock near the production area due to tissue shrinkage in live transit.

2. Slaughtering Capacity

Two types of capacity are important in the meat packing industry: slaughtering capacity and chilling capacity. Slaughtering capacity is based on one eight-hour shift, five days a week, while chilling

---

34 Raymond C. Nicholson. Livestock Meat and Farmers, (Saskatoon: University of Saskatchewan, 1965), p. 85.

capacity is based on one fill of the cooler every 24 hours, for a five day week. From this, it can be seen that slaughtering capacity is much more flexible than chilling capacity, as slaughtering capacity can be increased by working additional shifts per day. Chilling capacity is the most critical, as it is the most expensive, per square foot, to construct. Admittedly, some flexibility does exist in that these carcasses can be moved into available cars and trucks of available on a contract basis.

There has been much discussion as to whether there is excess capacity in the Saskatchewan meat packing industry. In terms of raw figures, one could surmise that excess capacity exists. The rated weekly slaughter capacity for the province is 7,510 head which is equal to over 390,000 head a year.[35] Saskatchewan has not slaughtered more than 240,000 head a year during the last 15 years (Tables 31 and 32).

Research has also shown that, for certain years, excess capacity existed for slaughtering cattle in Saskatchewan (Table 33). For the period 1967-71, less than 75 percent of the beef killing capacity was used.

The 390,000-head slaughtering capacity figures is substantially above those in Table 33 for at least two reasons. First, it does not take into account chilling capacity. The effective chilling capacity has been extended to 5,905 head a week, or 307,060 head a year. The numbers in Table 33 consider the reserve capacity required to handle fluctuations in cattle supply over the year: certain times of year

---

[35] D.Wm. Carr and Associates Ltd., Canada's Meat Packing Industry in Transition (Regina: 1976), p. 39.

Table 31: Destination of Saskatchewan Slaughter Cattle

Destination	1976	1977	1978	1979	1980	1981	1982
	- - - - - - - - - - - - number of head - - - - - - - - - - - -						
Saskatchewan	202,513	213,930	233,063	197,095	205,674	220,190	252,830
Alberta	47,589	39,546	28,933	26,277	25,078	20,680	28,250
Manitoba	262,803	228,068	116,540	73,577	80,261	79,340	123,770
Ontario	27,501	24,427	15,295	5,868	12,710	5,510	8,960
Quebec	2,267	435	227	71	1,599		
B.C	—	—	—	—	—	1,890	850
Maritimes	3	—	—	—	27		
U.S.A.	62,356	55,484	27,580	5,685	9,547	13,020	20,050
Total	605,032	561,890	421,638	308,573	334,896	340,630	434,710

Source: Saskatchewan Agriculture, Agricultural Statistics, various annual issues, 1978-82.

Table 32: Saskatchewan Beef Cow Herd and Federally Inspected Slaughter

Year	# of Beef Cows on Farms[1] Jan. 1	Federally Inspected[2] Slaughter for Year
	- - - - - - number of head - - - - - - -	
1967	848,000	152,984
1968	838,000	156,037
1969	815,000	162,311
1970	840,000	153,845
1971	905,000	155,722
1972	1,016,000	171,007
1973	1,090,000	161,672
1974	1,190,000	171,079
1975	1,248,000	168,359
1976	1,215,000	199,132
1977	1,160,000	208,929
1978	1,070,000	223,352
1979	1,013,000	184,350
1980	985,000	185,535
1981	970,000	203,897
1982	955,000	239,276

Source: [1] Statistics Canada, Livestock and Animal Product Statistics, catalogue No. 23-303, 1981.

[2] Agriculture Canada, Livestock Market Review, various annual issues, 1967-82.

Table 33: Excess Capacity of Beef Kill in Inspected Plants in Saskatchewan

Year	High Month	Estimated Capacity	Yearly Kill	Excess Capacity
	------ number of head ------			%
1971	16,417 x 12	197,004	155,722	28.8
1970	16,709 x 12	200,508	153,845	30.3
1969	16,436 x 12	197,232	162,311	23.5
1968	16,450 x 12	197,400	156,037	28.5
1967	15,677 x 12	188,124	152,984	31.1

Five Year Average 1967-71 = 28.4 percent

Source: J.B. Morris and H.J. Zilm.

see more cattle going to slaughter than other times. Packing plants must be set up to handle these peaks in supply. Taking this into account, plants have much less excess capacity than at first appears from the weekly figures.

Alberta slaughters many more cattle than does Saskatchewan. Table 34 shows the packing plants located in Alberta and their weekly slaughtering capacity. First, there are more packers in Alberta than in Saskatchewan: Swifts, Burns, CP, Lakeside, Dvorkin, X-L and Capital. Also, the total capacity is much greater: the weekly capacity is estimated, for 1980, to be 25,675 head.

Saskatchewan packers do not feed cattle in any sizeable amounts. However, in Alberta some feedlots also operate a packing company (e.g., Lakeside Feeders).

3. Additional Packing Throughput for Saskatchewan

It follows that since roughly 204,000 cattle were slaughtered

under federal inspection in Saskatchewan in 1981, the capacity exists to slaughter at least that number. However, if the target for Saskatchewan was to feed and slaughter 500,000 head yearly in Saskatchewan there would be an effective shortage of capacity. Either Intercon and/or Canada Packers would have to expand their existing facilities by adding onto existing plants, adding another killing shift or building additional plants elsewhere in the province, or a new firm would have to locate in Saskatchewan. There are at least two major cattle producing areas in the province that are without meat packing facilities: the northwest and the southeast. Fed cattle from these regions typically flow to Edmonton and Winnipeg, respectively, for slaughter. These two areas are certainly logical ones to look at for construction of a meat packing facility.

In 1978 a study looked at the feasibility of constructing a modern beef slaughtering/processing facility by new or existing firms. The plant would have the capacity for handling 1,000 steers a day. With 250 operating days a year, if operated at 100 percent capacity, the provincial slaughter would be more than doubled. Figures on the economic benefits from a new facility are given in Table 35.[36]

The original construction cost was estimated to be just over $34 million for the total project. The multiplier effect for a project of this type has been estimated to be 2.5 times the original cost, generating nearly $86 million in economic activity from the original

---

[36] Professional Construction Managers, Inc., "Beef Slaughter and Processing Facility for Intercontinental Packers Limited," engineering report (Sunnyvale, California, February, 1978), p. 32.

Table 35: Potential Economic Benefits from New Meat Packing Facility

Original Construction (Total project cost) Multiplier Economic Activity Generated	$34,321,000 x 2.5 $85,802,500
Operating Labor1 ($8/hr, 8-hr/day)	422 employees x 250 days/year $ 6,752,000/yr.
Operating Profit1 (estimated)	24,620,000/yr.
Provincial Tax Revenue: Labor (26% average tax rate, provincial 53% of federal tax)	$ 636,942
Profit (50% corporate tax rate, provincial 4% of federal tax)	$ 1,723,400
TOTAL	$ 2,360,342

Source: 1 Professional Construction Managers Inc., Engineering Report, 1978.

construction alone.[37]

The operation of such a plant would require a substantial labor force. To process 1,000 steers a day, it has been estimated that 311 workers would be required in the direct manufacturing process. In addition, 111 support staff would be required for office staff, supervisors, etc.[38] Assuming an average hourly wage of $8.00, the annual payroll for such an operation would be in the order of $6.75 million. This provides a direct taxation base for the provincial government, providing approximately $635,000 more revenue.

---

[37] Ibid., p. 32.

[38] Ibid., p. 33.

The feasibility study estimates an annual operating profit of $24.6 million prior to corporate income tax.[39] Taxation of this at current corporate tax rates would provide slightly over $1.7 million in tax revenue.

The benefits to cattle producers in the province cannot be overlooked. First of all, there is the benefit to cattle feeders in stabilizing the demand for cattle. This will be especially important in the area where the plant is built. If the location selected for the facility were the northwest or southeast area of the province, considerable benefits in savings on freight costs would accrue to area producers. Currently, the largest number of fed cattle in the area move to Edmonton and Winnipeg for slaughter. In the past, the ultimate market for these cattle has been Montreal. Therefore, Saskatchewan cattle moving to Edmonton would receive a lower price than they would if the cattle were slaughtered in Saskatchewan because the Toronto-based price declines as one moves west. In addition, Saskatchewan producers have to pay the freight and absorb the losses in handling from the point of production to Edmonton or Winnipeg. Therefore, it would appear that freight savings to Saskatchewan producers would be substantial if a packing plant were built.[40]

---

[39] Ibid., p. 42. In the authors' opinion, the $24.6 million operating profit is extremely optimistic. It should also be noted that the estimated benefit in terms of provincial tax revenue only includes the direct tax from meat packing and its employees, with no allowances for the secondary employment effects from building and maintaining a packing plant within the province.

[40] D.W. Carr, Canada's Meat packing Industry in Transition, p. 80.

The additional value of feeding the cattle out to slaughter weight is also of significance. Assuming the difference in value between a 600 pound feeder animal and a 1,000 pound fed animal to be the gross value added by the feeding industry, a 1,000 pound A1 or A2 steer at the current price of 70 cents a pound would be worth $700; a 600 pound feeder would be worth $450 at 75 cents per pound. If an additional 250,000 steers were fed to slaughter weight in the province to run the new packing plant at capacity, the gross value added for the province would be approximately $62.5 million a year.

The estimations of the economic benefits of building a new slaughter facility have been done under the assumption that the plant will receive enough cattle to operate at 100 percent capacity. This would mean an additional 250,000 head being retained in the province for feeding.

4. Packing Capacity as a Growth Constraint

It is clear from the above that the existing capacity for slaughtering in Saskatchewan is not being fully utilized, although for certain months of the year the two major plants in Saskatchewan may be at capacity. If this is the case, then more capacity would be needed to kill all of the cattle in Saskatchewan destined for slaughter (e.g., 334,896 in 1980). Why the capacity has not grown sufficiently is an interesting question. As an historical perspective, in the period 1967-71, for example, the yearly kill in Saskatchewan was roughly 155,000 and there was excess capacity. However, this was because some of the cattle were shipped out of Saskatchewan for slaughter. If all of the cattle in the province destined for

slaughter had been slaughtered in Saskatchewan, more capacity would have been needed than existed at that time.

If one takes the numbers in Table 33, where a capacity for killing about 200,000 existed in 1971 but only about 156,000 were slaughtered, one can ask why some of these were not killed locally rather than being shipped out of the province. Why did Burns pull out of Saskatachewan by closing its Regina and Prince Albert plants, and why did Intercon close its Regina operations when there was still in excess of 150,000 slaughter cattle leaving Saskatchewan prior to and during the 1970s? One must therefore question if this decision was entirely because of a lack of slaughter animals—especially in view of the expansion of the Canada Packers plant in Moose Jaw in 1975. Oligopoly theory suggests that this could be explained by the national size of Canada Packers and its superior ability to compete with regional firms (e.g., Burns and Intercon). Note that in 1961 Burns in Saskatchewan was much larger than Canada Packers. Burns is a relatively large packer in Alberta, with a weekly capacity of 4,600 head, but Canada Packers is larger, with a weekly capacity of 7,575 head (Table 34).

The conclusion from the above is that it was not necessarily the lack of slaughter cattle which caused plants to close in Saskatchewan but rather it was more advantageous for packing plants to locate out of the province and kill Saskatchewan cattle there. This will have been due to many factors: economies of scale in packing, unionized vs. non-unionized labor, market segmentation and predatory pricing, future growth prospects (both in terms of population and cattle supplies) and the political climate.

Not only do part of the slaughter cattle leave Saskatchewan—feeder cattle are also shipped out of the province (Table 36). Roughly 70 percent of the feeder cattle were shipped out in 1980. Suppose that, due to various economic incentives, at least 50 percent of the calves were fed out in Saskatchewan. Where would the additional ones be slaughtered? Unless new capacity was added to slaughtering, through expansion of existing facilities and/or by attracting new entrants, the cattle would be slaughtered outside of the province. Even though additional cattle might be fattened in Saskatchewan, there is not absolute certainty that expanding feeding capacity would guarantee increased slaughtering. As already pointed out, Burns left Saskatchewan even though there was a net export of Saskatchewan cattle for slaughter. How actively this added capacity could compete for increased supplies would depend in part on how aggressively Alberta plants would compete for the cattle. Increased feeding of calves within Saskatchewan implies decreased feeding in other provinces, but it does not imply a reduction in killing capacity in other provinces.

The assumption that Saskatchewan will feed at least half of the calves produced here is a strong one indeed. It is certain that additional packing capacity in the province will encourage more cattle feeding in the province, but this expansion will not guarantee a proliferation of cattle on feed. As pointed out, the economics of feeding cattle depends on many factors, only one of which is adequate killing capacity in the province. As the previous section suggests, one of the major deterrents to feeding cattle in Saskatchewan is uncertain grain supplies and prices. Perhaps from a feedlot

Table 36: Destination of Saskatchewan Feeder Cattle, 1976-1982

Destination	1976	1977	1978	1979	1980	1981	1982
	- - - - - - - - - - - - number of head - - - - - - - - - - - -						
Saskatchewan	204,801	284,185	176,813	341,183	238,857	219,880	213,710
Alberta	192,162	208,201	227,052	206,331	221,887	189,800	168,930
Manitoba	71,895	92,393	44,845	40,349	50,669	43,370	42,440
Ontario	252,296	278,467	356,006	270,453	343,732	223,250	244,680
Quebec	643	1,006	62	488	3,154		
B.C.	4,133	3,097	3,103	1,714	1,312	6,750	9,150
Maritimes	334	10	—	—	223		
U.S.A.	26,650	75,748	31,038	17,477	23,027	23,110	37,440
Total	752,914	943,107	938,218	877,995	882,761	706,160	716,350

Source: Saskatchewan Agriculture, Agricultural Statistics, various annual issues, 1978-81

standpoint, a local slaughtering plant is preferred because of reduced tissue shrinkage, but unless added packing capacity increases competition and hence fat steer prices, it may make very little difference where the cattle are slaughtered. However, from society's standpoint, there is a significant difference.

The failure of the Saskatchewan packing industry to slaughter the livestock fed within the province means that Saskatchewan livestock prices will continue to be on an export basis to Winnipeg or Calgary-Edmonton. Saskatchewan producers will therefore continue to receive the lowest beef prices in Canada and it is further hypothesized that this will result in little or no growth in Saskatchewan livestock feeding until this problem is overcome.

The location of added slaughtering capacity in the province is an

interesting issue. As suggested, potential locations are in the high cattle concentration areas of the southeast and northwest. However, one should not forget the previous discussion about the complementarity of irrigation and large-scale feedlot operations. Perhaps the growth in cattle feeding, with the proper incentives, will occur in a major irrigation district in Saskatchewan such as Outlook. If this is true, perhaps expanding capacity in the northwest of the province, for example, is non-optimal.

E. THE BEEF-GRAIN SECTOR—THE POLITICAL-ECONOMIC ENVIRONMENT

The historical development of the beef industry presented earlier, along with the economic analysis of the cow-calf, feedlot and packing sectors, should be discussed in a broad political-economic context. Cattle production must compete for scarce resources along with wheat, hogs and other farm commodities. How the beef sector will compete in the future critically depends on its economic strengths. Policy changes can influence key economic variables, and have a significant impact on the growth of the beef sector relative to other industries. Economic factors and the influence of policy on these factors explain to a large degree the growth pattern in the Saskatchewan beef industry.

1. Inflation, Interest Rates and Taxation

(a) Inflation

Inflation has been one of the realities experienced by major Western economies. Inflation has re-allocated income between individuals and between enterprises. Asset values have risen relatively rapidly—and the asset mix which is owned and used by each enterprise has a marked impact on the total earnings and the wealth position of those owners. Enterprises owning large tracts of land increased their wealth and equity position. Most grain producers own their land while many cow-calf producers lease Crown land (see Section B). Feedlots do not require large blocks of land and feedlot values do not escalate with inflation. Inflation has improved the wealth position of owner-operated grain enterprises.

(b) Interest Rates

The high and volatile interest rates of the early 1980s have changed the investment climate and the levels of return between various enterprises. Enterprises with slow rates of capital turnover become less competitive. The cow-calf industry has a slow capital turnover since a breeding cow must be maintained for a full year and a cow only produces a single calf each year. Cattle feeding operations maintain cattle on feed from 60 to 240 days. Financing feeder cattle during the feeding period is a significant cost. High interest rates increase the costs per pound of gain and, if slaughter prices remain unchanged, result in lower feeder cattle prices. This creates further instability in returns to cow-calf producers. Other livestock enterprises, such as poultry and hogs, maintain a larger investment in fixed facilities, such as barns and equipment, which cannot be altered in response to short-run changes in interest rates. The cow-calf producer can liquidate (i.e., cull) the beef herd, his major capital item, in response to high interest rates. This makes the beef industry more vulnerable in the short run to the disruptive impact of high and volatile interest rates than other livestock enterprises. However, a large grazing land base is a fixed cost for some cow-calf producers, making these producers less vulnerable to rising interest rates, at least in the short run.

The grain industry is also vulnerable to high interest rates, particularly for new producers who have recently purchased highly priced land. For example, assuming $1,000 per acre land and 20 bushels of wheat per acre per year at $5 per bushel, it takes 10 years to turn over the value of the assets. These figures illustrate that the land market is clearly driven by speculative elements in addition

to its productive capability. Rising interest rates tend to be positively correlated with inflation. Land is viewed as a hedge against inflation, unlike feeder cattle. If interest costs rise, feeder cattle prices fall, but land prices can—and often do--continue to rise during inflationary periods.

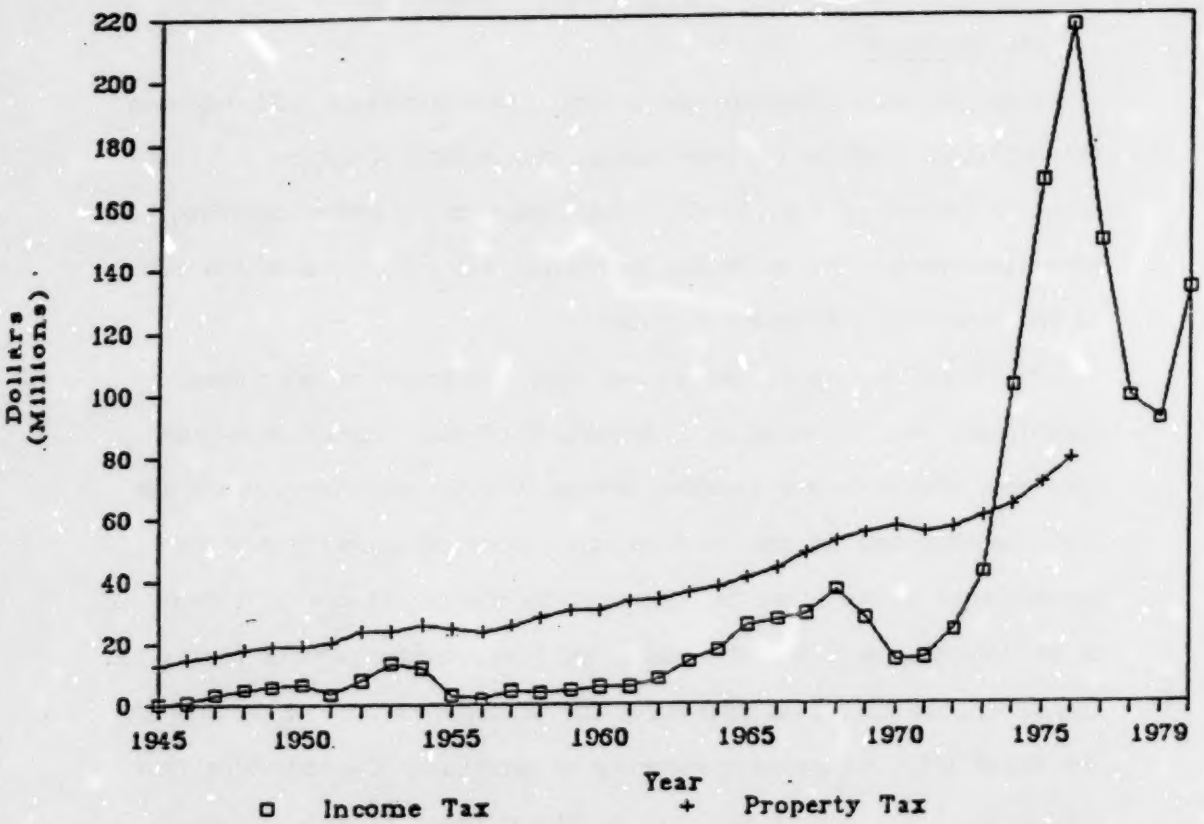
(c) Taxation

Both government spending and taxation have important influences on the regional location of enterprises, choice of enterprise and the level of incomes of individuals. The impact of government spending is recognized more often in policy strategies and policy evaluation than is the impact of the taxation system.

The taxation system has become more important as government expenditure has increased as a proportion of gross national product. One major change in the taxation system over the past forty years has been the decrease in the relative importance of property tax for Saskatchewan farmers and the increase in the importance of income taxes (see Figure 14). The number of Saskatchewan farmers paying income tax has increased from about two or three percent of farmers in the early 1940s to the vast majority of farmers by the mid-1970s (see Figure 15). The income tax paid by Saskatchewan farmers increased from less than one percent of Saskatchewan realized net farm income in the early 1940s to about 14 percent of realized net farm income in more recent years (see Figure 16).

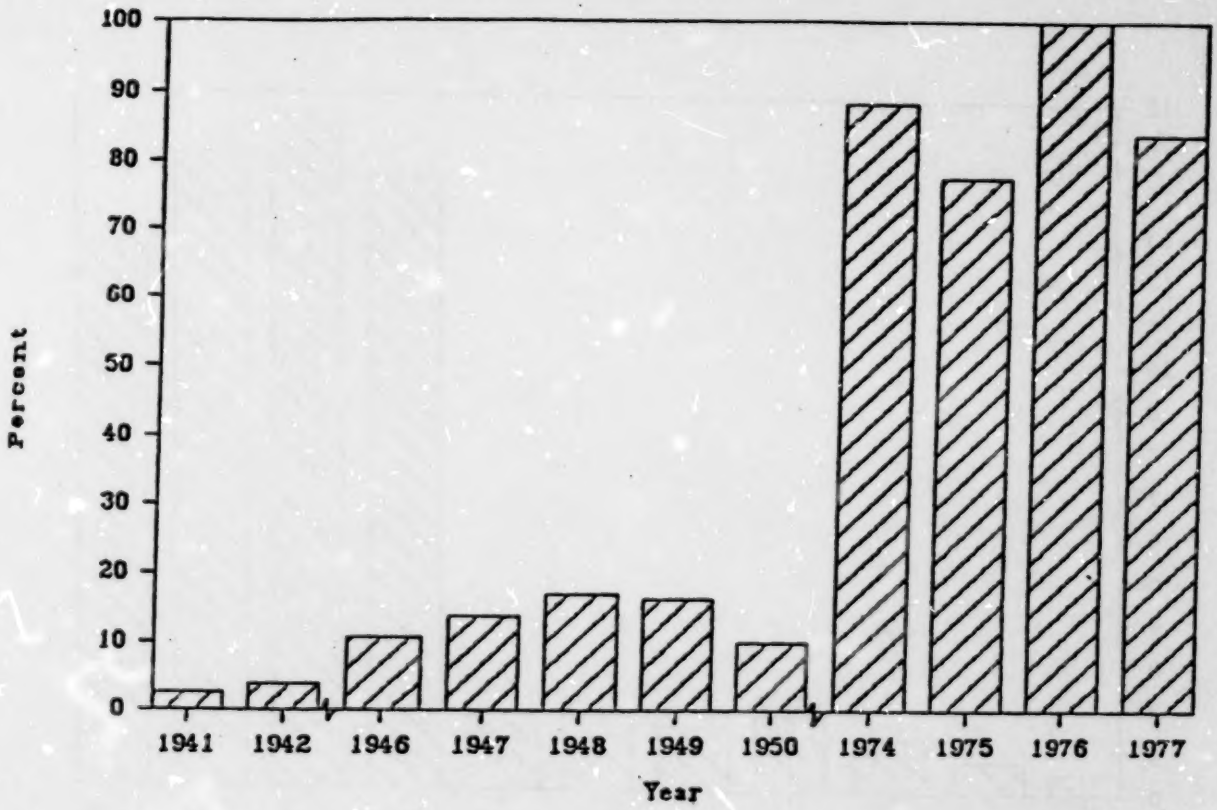
Saskatchewan farmers are paying an increasing share of their personal income taxes to the Saskatchewan government rather than the federal government. In 1976 only 32 percent of farmer total income

Figure 14: Income Tax Versus Property Tax



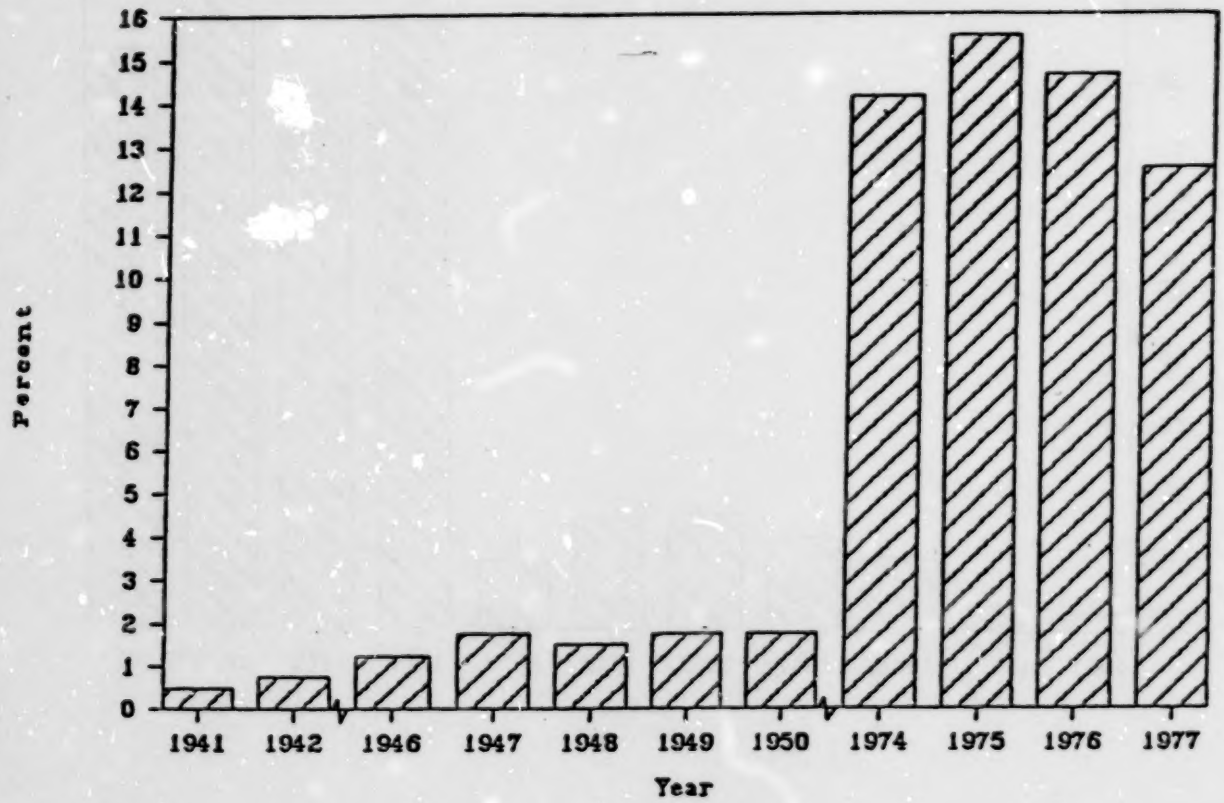
Sources: Revenue Canada, Taxation Statistics, and Saskatchewan Department of Municipal Affairs, Annual Report (1945/46 to 1975/76).

Figure 15: Percentage of Saskatchewan Farmers Paying Income Tax



Sources: Revenue Canada, Statistics Canada

Figure 16: Income Tax Paid by Saskatchewan Farmers



Sources: Revenue Canada, Statistics Canada

taxes were destined for the Saskatchewan government; by 1980 that share had risen to 46 percent (Table 37).

Table 37: Income Taxes Paid by Saskatchewan Farmers, 1976-80

	1976	1977	1978	1979	1980
	- - - - - - - thousands of dollars - - - - - - - - - -				
Federal Tax	127,121	82,602	87,887	123,133	133,544
Business Investment Tax Credit	15,241	15,358	20,550	37,064	45,452
Net Federal Tax	100,865	54,828	50,026	72,345	73,901
Net Provincial Tax	47,417	43,540	41,203	60,568	66,911

Source: Revenue Canada taxation statistics obtained courtesy of Saskatchewan Department of Finance.

Income taxes have now become important and farmers consider income tax implications in making their farm management decisions. Grain income is deferred, new tractors are purchased in November[41] and fertilizers are purchased and stored in November, all as strategies for income tax management. Taxation rules can affect the decisions regarding choice of enterprise, choice of asset mix, the timing of sales and purchases and the form of business organization.

Income tax utilizes an explicit set of rules. What one does is

---

[41] The practice of purchasing a major capital item at the end of the year has been reduced with the tax changes of the November 1981 budget, where only half of the increase in the undepreciated capital cost of the class is included in the calculation of CCA for that class.

sometimes less important than how one does it. Often the nature, rather than the substance, of the transaction is important in determining the tax payable.

The process of taxation is indirect and somewhat hidden from the public view. Therefore it is difficult to closely scrutinize the impact of taxation and include taxation measures in the public policy process. Many forms of government action such as cash subsidies, tariffs, border controls or marketing board regulations are more visible to the public. Unlike subsidies which often apply to specific sub-groups (for example, grain or cow-calf stabilization), income tax rules are universal and apply to all producers. This makes the set of taxation regulations a key policy variable and an important policy tool.

The changes in the taxation system have had implications on enterprise choices. In the 1940s and 1950s when property taxes were more important than income taxes, the tax structure encouraged the intensive use of land. Since virtually no producers paid income taxes, it did not matter if the dollars were earned from wheat, hogs, steers or milk cows. More total dollars generated was the economic guide. Now the relative taxation rules affecting each farm enterprise become the decision-making guide—i.e., after tax income.

The Canadian tax system underwent major revision in the early 1970s. One of the taxation changes included the introduction of a capital gains tax and the elimination of death and estate taxes. Although one half of the capital gain is taxed as income, the result of the change was to encourage the accumulation of wealth in addition to the earning of income (assuming rising land prices). There are tax

advantages for investing in land or apartment blocks and realizing a capital gain rather than earning income through the sale of wheat, hogs or steers. The "rollover" provision available for farm assets provides an interest-free loan from the government (on outstanding taxes payable) to be paid back sometime in the future. This makes it attractive to accumulate wealth through the ownership of assets during periods of rising asset value. These tax changes provide benefits to owner-operated grain enterprises relative to a cow-calf enterprise using community or PFRA pastures, or to a feedlot enterprise.

Another change in the early 1970s was the mandatory use of Schedule XI in Capital Cost Allowance (CCA) for all new capital purchases. Farmers, on Schedule XVII, could continue to depreciate and sell existing assets under the former rules. Schedule XI incorporates higher capital cost allowance rates on a declining balance basis while Schedule XVII used lower rates on a straight-line basis. Capital recapture occurs under Schedule XI, although it did not occur under the former schedule. During the transition period a producer could buy machinery on Schedule XI and sell or trade in equipment on Schedule XVII. This was the best of both worlds, as higher CCA rates were used on the new equipment and no capital recapture occurred on the used equipment. This benefit during the transition period only accrued to flexible assets which could be traded—tractors, combines, balers, etc. Fixed capital such as feedlots, dairy barns and machine sheds could not capture these taxation benefits during this transition period. The mix of flexible vs. fixed capital assets used in grain production resulted in the grains industry receiving greater benefits during the transitional

period than the beef industry did.

This transitional period is nearly over.[42] Virtually all of the pre- 1972 equipment has been traded in or sold, or is worth very little. The new CCA Schedule now results in many grain farmers having incurred a tax liability which may be payable at some future time. A grain farmer may have machinery valued at $350,000, with only $90,000 as the undepreciated value in the CCA account. The difference of $260,000 is income (some may be capital gain) and will be taxed on retirement or death unless transferred to a spouse or child through the rollover provision. This same tax liability is not accumulating on livestock enterprises, since the facilities are not traded and tend to fully depreciate over a period of years.

The taxation system was not designed in a period of inflation. The increase in inflation penalizes fixed capital items with low CCA rates. These items incur real dollar costs at the time of purchase, but are depreciated in nominal dollars over their lifetime.

No allowance is made in the CCA schedules for the sharp decline in the value of assets which are non-mobile and single-use in terms of the rapid initial rate at which their market value declines. The CCA rates may not reflect the real rate at which assets lose value.

Other recent changes include the introduction of a business investment tax credit (BITC) on the purchase of new capital items. Five percent, 7.5 percent and, more recently, 10 percent of the value of a capital asset is deductible from federal income tax payable.

---

42 Some buildings may still be on Part XVII, but these assets are typically not "traded in" as is the case for farm machinery.

Tractors can be traded every year or two; fixed capital structures like barns and machine sheds cannot.

The BITC also impacts on regional production patterns. The BITC is at 20 percent in the Maritime provinces and the Gaspe Peninsula of Quebec.

Another change in the tax system in the early 1970s was the removal of the basic herd provisions. Breeding cows were no longer recognized as capital goods in Canada. The U.S. treats livestock as a capital good which can be depreciated over the life of the animal. U.S. producers receive a 10 percent business investment tax credit on their breeding herd and can market their cull animals and realize a capital gain rather than treating it as earned income. Unlike U.S. cow-calf operators, Canadian producers are unable to realize a capital gain on a culled breeding animal nor are they allowed business investment tax credits on breeding livestock. This reduces Canada's competitiveness with the United States in the production of feeder calves. Within Canada, it may encourage the purchase and use of non-livestock capital goods. Tractors, combines, balers and silos can all receive a BITC and achieve a capital gain during rapid inflation. But breeding animals are treated the same as feeder animals in Canada for tax purposes: they are a cash expense at the time of purchase and an income at the time of sale. However, Canadian tax laws provide for a livestock inventory provision, which is beneficial to Canadian producers during years of low income.

There are numerous other tax measures which may have an important impact on enterprise mix, regional production patterns and the structure of agriculture. Some might include the grain income

deferments which are allowed within the CWB region to grain producers. This facilitates more stability in income levels for grain producers and reduces their current tax payable, under progressive taxation.

Taxation should be recognized as an important policy tool. Its impact is universal within a sector. Saskatchewan has the greatest opportunity to utilize taxation changes as a policy tool, since Saskatchewan farmers pay more income taxes than do their counterparts in any other province, as outlined in Table 38.

Table 38: Net Federal and Provincial Income Tax Paid by Farmers by Province, 1974-79

	Sask.	Alberta	Man.	Ontario	Quebec
	- - - - - - - - thousands of dollars - - - - - - - - - - - -
1979	132,912	84,277	26,223	82,754	10,924
1978	91,229	59,658	19,320	64,757	8,765
1977	98,368	57,641	15,744	56,960	7,234
1976	148,282	70,257	25,403	62,680	8,433
1975	216,691	91,555	37,010	74,428	8,927
1974	167,342	90,000	37,691	79,752	6,170

Source: Revenue Canada, Taxation Statistics (Ottawa: various issues).

The profit picture for cow-calf operators presented earlier has led some to argue that tax changes would be of no benefit to these operations since few have realized profit or paid income taxes in recent years. More favorable tax treatment of breeding animals may encourage producers with taxable incomes to utilize resources which

are currently wasted in combination with their other enterprise. In addition, it should be recognized that the tax structure could be altered to encourage cattle feeding. This could divert investments by wealthy grain producers in such items as apartments or foreign real estate to the livestock feeding sector. Custom feeding could be facilitated by taxation means, and this could increase feeder cattle prices and returns. The advantages of custom feeding as a means of reducing risk has previously been discussed.

2. Competition for Resources

(a) The Wheat Economy

The wheat economy within Saskatchewan is and has been the major source of farm income since Saskatchewan became a province in 1905. The wheat economy is well-developed in terms of country elevators, the transportation infrastructure, and various institutions to facilitate the marketing of products, reduce the fluctuations in prices and producers' income, and other government initiatives to support and sustain the industry. The wheat industry has considerable political clout with a large number of producers, large elevator companies, and the Canadian Wheat Board.

The market for wheat has been growing and world trade in wheat has increased over the last decade. Some project that this growth rate will continue and the wheat board has suggested an export target of 36 million tonnes for 1990. While there has been growth in the world wheat trade, it is important to recognize that this growth has been slower than in the feed grain market, whose ultimate use is livestock. Feed grain exports, predominantly U.S. corn, have increased much more

rapidly than has the world trade in wheat. Conditions have also changed in the world wheat market. Canadian hard red spring wheat in the past has commanded a significant premium because of its high gluten strength and the milling techniques which used Canadian wheat for blending. This has changed as milling techniques have improved and much of the market can now be filled with lower quality soft wheats. The proportion of hard red spring wheat in total world trade has declined.

A major shift in world wheat markets has occurred. Historically, the European and Japanese markets were the largest markets for wheat. This has now shifted to China, the Comecon countries and the less developed countries in recent years. Canada maintains close trading relationships with China and the USSR. Both markets are large, but the quantities purchased from one year to the next vary considerably, particulary for the USSR. This may add a new instability to Canada's world wheat exports on an annual basis, and has a detrimental effect on many grain and livestock producers in western Canada. However, those with superior management ability and information may in fact gain from this added instability.

In world trade, it would appear to be easier to get improved access for a raw product such as grain relative to livestock or livestock products, since these represent further value added. This does not deny that barriers to trade exist for wheat. Indeed, the system of variable levies in the EEC and its use of export subsidies to sell wheat clearly create a restricted market for wheat. Likewise, the Japanese system of variable levies applies to both grains and meats, but the restrictive quota which Japan applies to livestock

tends to maintain a highly protected livestock and livestock product market within Japan.

The U.S. has increased its share of the world wheat market. The release of land from the soil bank was a major factor, but it may also be partly due to greater adoption of winter wheat over the past few decades. This has created more total production, as winter wheats are typically higher-yielding and provide a better set of cropping options for producers. Winter wheat can also serve as grazing base for livestock during the fall and early spring. Canada has been rather slow in adapting winter wheat and utility wheats partly because of regulations requiring that these wheats can be identified visually.

The wheat industry was developed primarily to service an export market. The transportation, handling and financing of that product thus becomes an important part of its total cost and therefore of Canada's competitive edge. The real cost of grain transfer has been rising rapidly as energy costs have increased and as the cost of interest and financing have increased. Within the West, for example, elevator handling charges have moved from less than a nickel a bushel to over 15 cents a bushel during the past decade. Terminal handling charges have increased, storage charges both in the country and at terminal positions have increased, and lake freight rates have also risen over the last decade. With the recent removal of the Crow rate and producers paying increased freight costs for grain exports, Canada's comparative advantage for export wheat production will be reduced.

Canadian wheat exports require a large inland storage collection and transportation system. Terminals are required at the Lakehead and

at export positions. The geographic distances in Canada and the closure of Thunder Bay for about four months each year due to adverse weather conditions results in a large pipeline requirement in Canada. One measure of comparing our position relative to our major competitors is to compare the stocks carried over by each country at the end of each crop year relative to their production level. Figures 17 through 20 compare Argentina, Australia and U.S. ending stock and production statistics with Canada's. The beginning stocks (or ending stocks) include all stocks on farms and in commercial positions.

In view of the above, Canada's advantage in producing export wheat, relative to other prairie products, may be changing.

Canadian wheat must compete against some of the export subsidy programs of the EEC as well as the low-interest credit and other policies that the U.S. makes available to encourage exports. The changing mix of U.S. policies may increase the volatility of wheat prices through the development of a shortage of free stocks within the system. Canada has a series of programs to cushion the impact of wide swings in grain prices on the grain producer and on the major suppliers of grain related farm inputs.[43]

(b) The Livestock Economy

The production of livestock offers an opportunity to reduce the weight and bulk of grain material prior to its sale. Location theory suggests that regions which are distant from markets should concen-

---

[43] These programs include the guaranteed initial payment, Western Grain Stabilization and the lag which exists because of the initial and final payment. These tend to serve as automatic stabilizers for the grains industry within Canada.

Figure 17: Argentine Wheat Production and Beginning Stocks

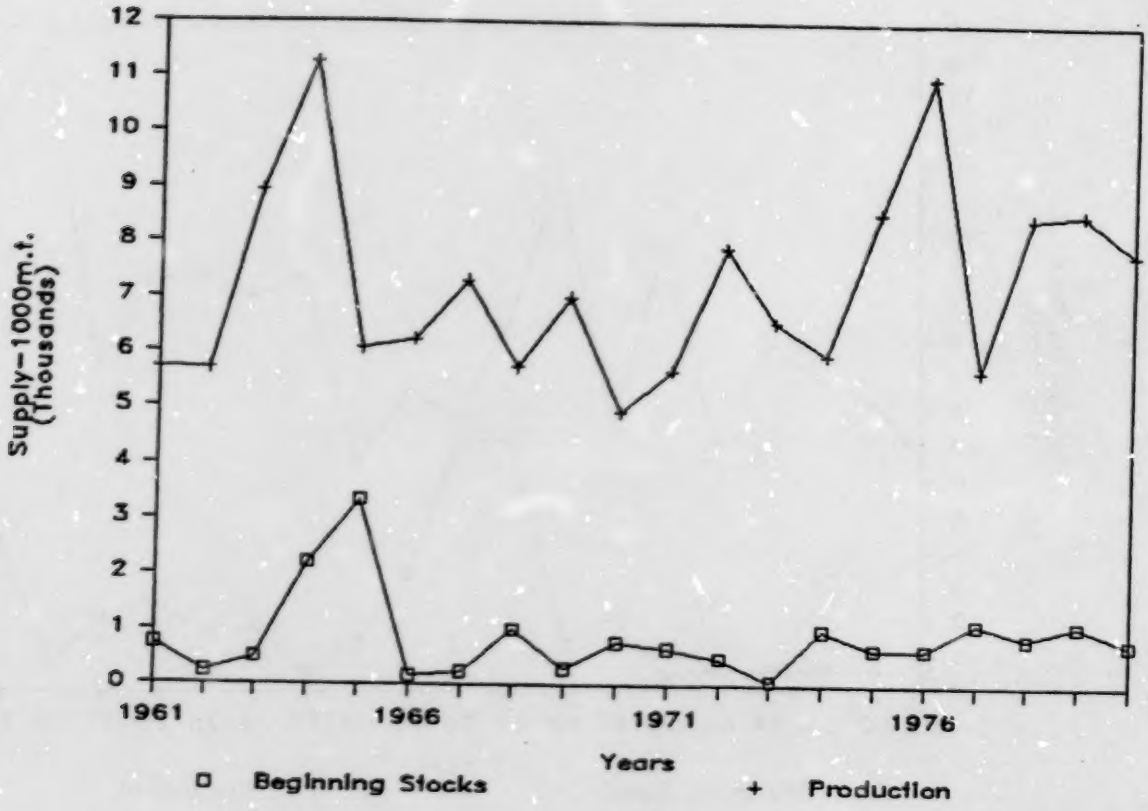


Figure 18: Australian Wheat Production and Beginning Stocks

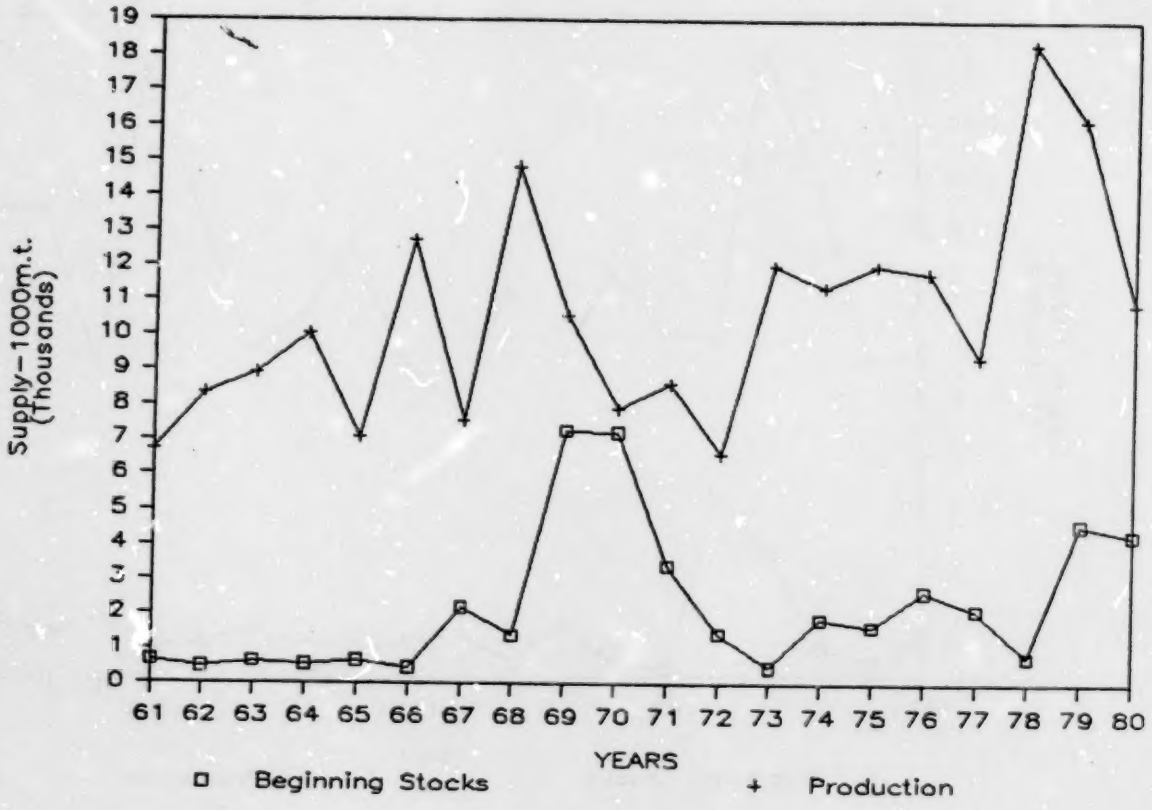


Figure 19: U.S. Wheat Production and Beginning Stocks

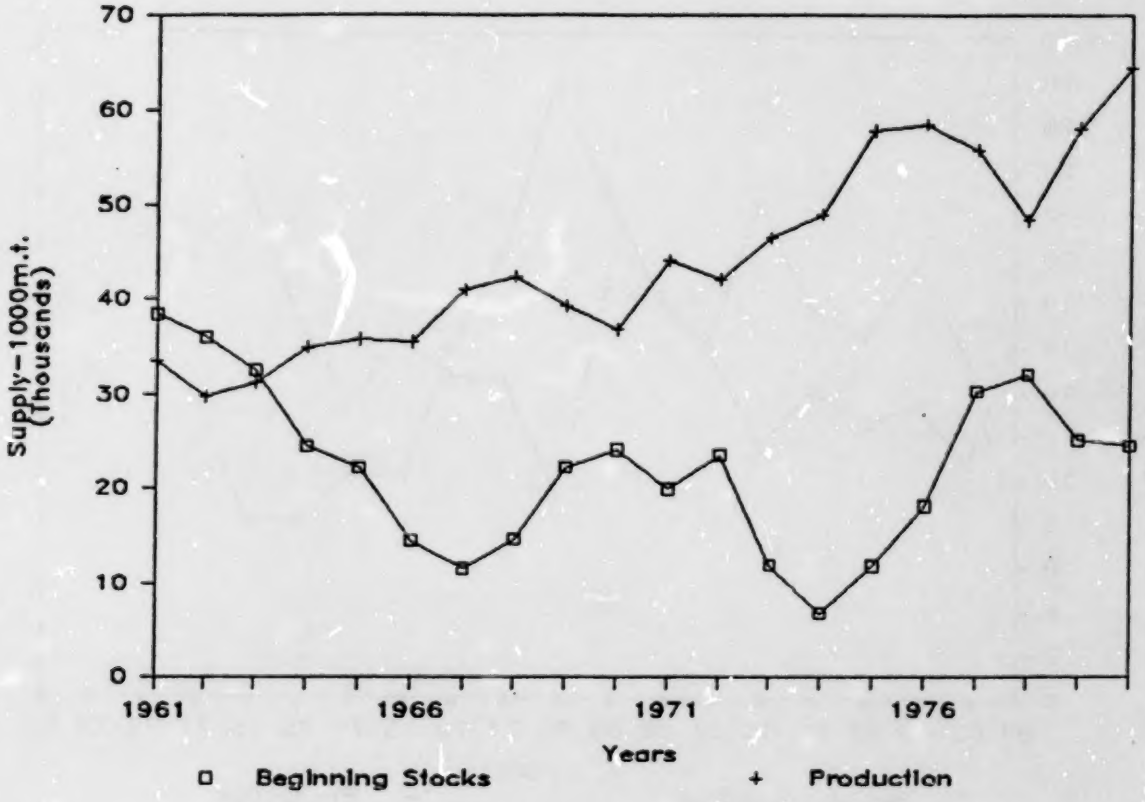
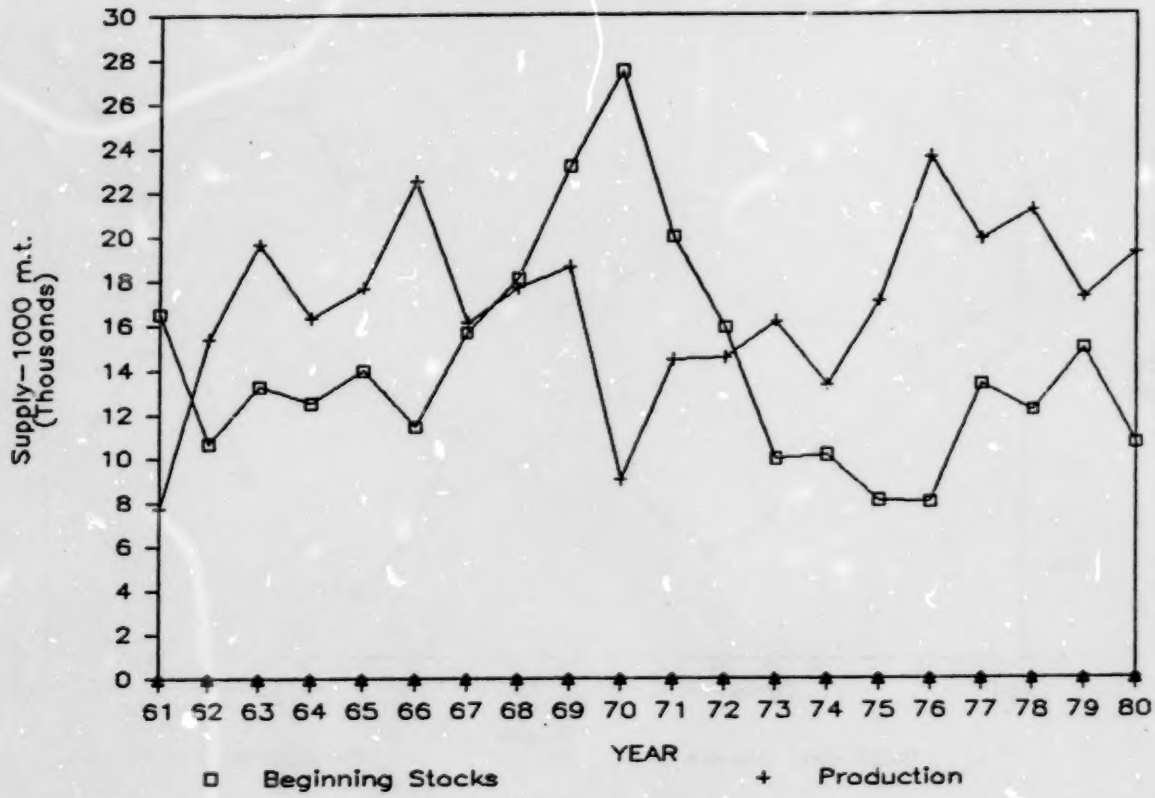


Figure 20: Canadian Wheat Production and Beginning Stocks



trate the product and sell high-value products rather than low-value bulk products. The Hall Commission stated that a production process should locate in the area of the raw materials if: firstly, the manufacturing process significantly reduces weight; secondly, the freight rates are higher for the raw materials than for the products; thirdly, the product is easier to transport and store in the processed form than in the raw form; or fourthly, the by-products of the process are more profitably disposed of in the local area than any other area.[44] These criteria regarding locational advantage suggest that high-value products which are processed should be produced in the prairie region of Canada.

The regional location of livestock production in the United States has shifted westward during the past century. Initially, the livestock were grown on the eastern seaboard of the U.S. near the population centers; but, as technology developed, the livestock slaughtering moved to Cincinnati, then to Chicago, and now to Nebraska, Texas and Kansas. These shifts are consistent when comparative advantage and the changes in transportation are considered. The Canadian system has not experienced this substantial western movement and concentration of the beef feedlot and packing industries.

Saskatchewan, unlike Alberta, currently lacks many of the key elements of infrastructure and institutions necessary to expand the livestock industry. One of these is a local grain market where supplies are easy to locate and prices are efficiently discovered.

---

[44] Hall Commission, Report of Grain Handling and Transportation Commission (Ottawa: 1977), vol. 1, p. 278.

This is a function of our marketing system and our feed grain marketing policy. Saskatchewan producers do not have effective alternatives for hedging their raw grains, nor their feeder or fat cattle. The risks for Canadians hedging in the U.S. market are high because of changes in foreign exchange, the risk of border closure and the isolated western Canadian barley market, which does not move in concert with the U.S. market. Hedging western barley results in a considerable basis risk and does not provide a western feed user the opportunity to use the grain if delivery is accepted.

Saskatchewan has not developed viable feedlots that incorporate scale economies (a needed ingredient, as pointed out earlier). Part of this is due to risky grain supplies and our grain marketing system. Grain farmers, through wheat board pooling and other means, can reduce risk, but it is much more difficult to undertake good risk management strategies in cattle feeding. Institutions to facilitate risk management in Saskatchewan feedlots are currently not available.

There is currently little or no vertical integration in the hog or beef feedlot segments of the Saskatchewan livestock industry. Vertical integration can be a useful mechanism to handle price risk. If vertical integration is not preferred by governments, then other mechanisms to effectively handle risk in today's volatile markets must be developed.

There is no readily identifiable hay market within Saskatchewan. This has made costs of transaction and costs of search for hay very high and has discouraged both the development of livestock and the seeding of grass or legumes on small saline areas. A grading system for hay and a mechanism both to lower the cost of search and to

improve the market for hay are required. One option might be to establish a forward-trading device for good quality hay.

Many of the cow-calf units within Saskatchewan are very small in size and have existed predominantly as a means to utilize waste resources. Such an operation has not been the major farm enterprise, but an appendage, so little effort has been made to adopt the recommended production practices. Modern practices such as feed testing, semen testing of bulls, pregnancy checking of cows, the use of vitamin A, warble treatment, and other vaccinations are simply not incorporated on these small production units. As a result, one hears of starving cattle, low conception rates, low birth rates and poor daily gain. The quality of herds, though reasonable by Canadian or North American standards, could be improved substantially.

Producers in all segments of the beef industry remain divided philosophically, so they have no strong, effective lobby with governments and they have been unable to implement programs which would either help their industry or to even identify other programs which may be harmful to their industry. The comments in the historical section earlier indicate the relatively meager regulations which beef producers have effected for the benefit of their industry.

The beef cycle comes at a high cost to producers in terms of their adjustment costs, and will continue to be generated thanks to the biological nature of the industry plus external shocks. These major shifts in profitability for the livestock industry will continue to place a premium on the use of labor and discourage the adoption of highly capitalized systems which would improve labor efficiency in livestock production.

The consumption of beef in Canada and in North America has declined rather dramatically in recent years. Part of this has been due to the kill-off of the herd and the lower production now being experienced. Another part of it relates to other meats such as poultry, which can be produced at better feed conversion rates over a shorter production cycle, thus allowing faster adjustments to the disruptions in grain prices and supplies. The U.S. grain programs of the 1950s and 1960s, which stabilized grain prices, favored beef production. The current system of U.S. grain programs, which may create fluctuating prices, hurts beef relatively more than poultry. The increased production of U.S. beef may have been fostered by these programs during the 1950s and 1960s as well as by changes in U.S. tax laws which allowed beef cows to be treated as capital assets. During this period of general inflation, rising beef cow values allowed beef producers a tax saving on the appreciation of their breeding herd inventory as the herd was culled and heifers were added. This meant that the returns accruing to the owners of beef cows did not come entirely from feeder cattle production but also from the tax saving on the sale of cows as capital assets. This benefit, however, fluctuates as cattle prices rise and fall through a cycle.

The trade in cattle products has also undergone some fluctuations in the recent past. The lifting of the Nixon price freeze in 1973 and the escalation of the tariffs by Canada were followed by punitive quotas put in place by the U.S. This disrupted Canada-U.S. trade. The borders between Canada and the U.S. have a history of being closed during certain periods. This is a major risk to expanded livestock production, which may require significant foreign markets. Priority

must be given to the establishment of longer-term trading rules which could be maintained through short glut periods if an export market is to offer any degree of security into the future.

If Canada is unable to dramatically increase its exports of red meats, and/or if the consumption of red meats within Canada does not increase, regional shifts in beef production must occur if Saskatchewan wants to finish a larger percentage of its calves within the province. The earlier data suggested that roughly 70 percent of the calves produced in Saskatchewan are finished in Ontario and Alberta. If, for example, Saskatchewan wants to finish 60 percent of its own calves, then Ontario, for example, will have to obtain calves elsewhere. One natural source is the southeastern United States. The actual implementation of a program designed to encourage feeding in Saskatchewan should take these regional implications into account. If a price war started over the purchase of feeder cattle, the ultimate winners in terms of who would finish cattle would be those whose government had the largest treasury and/or those with the greatest natural comparative advantage.

As the earlier data show, Saskatchewan has not developed a viable livestock industry. This is partly because institutions favor the export of raw grains inspite of Saskatchewan being in an area which is a long distance market where transport costs for grain are high. Many of the government programs and existing institutions have tended to erode the competitive position of livestock in the West, particularly Saskatchewan. These, it is argued, were not intentional programs aimed at hurting livestock; rather, they were the unintended consequences of seemingly desirable actions taken within the grains industry.

3. Current and Recent Programs: Some Unintended Consequences

Many of the programs implemented for the grains economy have a positive effect on grain but have an unintended negative impact on livestock. Sometimes the negative impact is greater than the mere magnitude of the subsidy or the differential support provided. This is not intended to suggest that no provisions have been made for livestock. A number of inputs are subsidized, including: community pastures, Crown leases, provincial pastures and quarantine facilities. Meat inspection and health inspection are undertaken to ensure quality products for consumers and producers. For producers, inspection is necessary to enable our cattle and meat to enter the U.S. and world markets. Record of Performance is encouraged and research is conducted to improve the genetic base. However, government support for livestock has generally been of a neutral nature with respect to location of economic activity across Canada. Crown land which subsidizes the cow-calf industry within the province may produce a feeder which is fed out and slaughtered in Alberta or Ontario. Quarantine and R.O.P. facilities are also quite neutral with respect to regional location of livestock.

The support for the grain industry is dramatically different. A large number of the grain-related programs have specific criteria which can create distortions in production patterns between regions. The mechanism used to transfer revenue from government to grain producers can have an influence on regional production patterns.

(a) Western Grain Stabilization Program

The Western Grains Stabilization Program is an example of a

program which may influence regional production patterns. Participation is voluntary and producers place money into the fund at 2 percent of gross receipts and the federal government puts in 4 percent. This is designed to stabilize cash flow to producers and to the western region. However, the result is that if a producer sells barley for feed in say, Quebec or Japan, he can generate a federal contributon of 12 cents per bushel into the stabilization fund on $3-per-bushel barley. If he feeds the barley on his own farm, as was the traditional practice before the program was implemented, there is no federal subsidy because its payment cannot be administered. The subsidy only applies to grain which leaves the farm where it was produced. Provisions are made for western feed users to become designated purchasers and deduct levies.

(b) Cash Advances

Cash advances are another form of support for the grains industry which provide interest-free money to grain producers. Again, this interest-free money is only applicable to grain which will be entering the commercial system and, therefore, is primarily leaving the region for export. The result is a subsidy on the export of the grain, while there is no subsidy on any grain utilized on the farm where it was produced.[45]

---

[45] This can be measured by using the C.W.B. annual report, where the federal subsidy to date since the inception of the program is reported each year.

(c) Wheat Export Assistance

Despite the considerable growth in the wheat market, export wheat still forms a significant portion of our foreign aid. Approximately 30 to 40 percent of all exports are credit-assisted by the federal government.[46] That is, the federal government provides a loan guarantee. For example, if Poland should default on its loan, the federal government would pick up the loss. Again, this only applies for grain which is being exported.

(d) Crop Insurance

Federal and provincial governments also operate a crop insurance program. This program reduces the risk in crop production by allowing producers to insure against hazards such as frost and drought. The crop insurance premium paid by the producer is matched by the federal government and the provincial government picks up the administration costs. This program offers significant support to grain and reduces the need for a producer to seek a stabilized income through a diversified enterprise.[47] This program is more neutral with respect to regional production patterns than most since it applies to all grains,

---

[46] However, it is recognized that the federal government provides support for exports of dairy products (skim milk powder, cheese, etc.), but this is predominately of benefit to dairy producers and impacts on those regions where the dairy sector is a major industry.

[47] Specialization, as argued earlier, is not necessarily bad. The current problem in Saskatchewan is that the increased specialization in grain is not bringing about increased cattle numbers. In other words, enterprises specializing in cattle are not increasing their numbers and/or there are not sufficient cattle operations. This is the issue which policy must address.

whether they are used for feed locally or for exports. However, some specialty crops do not necessarily qualify. As well, forage is not covered. Therefore, the program may reduce the need and the rate at which the region adjusts its production mix.

(e) Feed Freight Assistance

The "interim" feed freight assistance program has now operated approximately four decades. Feed freight assistance is used to reduce the freight cost of moving grain from points in western Canada to B.C. or points east of Montreal. Some of this assistance has recently been removed on grains shipped to areas of Ontario and western Quebec. However, the subsidy savings were used directly to provide low-interest money and infrastructure grants for the establishment of local and terminal elevators in feed deficit regions. This has also served to reduce the West's competitiveness in livestock production by providing direct freight and infrastructure assistance to non-prairie regions. The Crow Rate has often been identified as another factor discouraging livestock production in western Canada.[48]

---

[48] Some suggest that the Crow Rate is another important subsidy on grain movement. The grain freight rates to Thunder Bay and on export movements to Vancouver have remained at turn-of-the-century levels. Some current estimates suggest that the real costs of railway movement are approximately five times Crow. At a point such as Saskatoon, a 22 cents-per-hundredweight freight zone, the costs then are 10.6 cents per bushel for barley. The estimated real costs at five times Crow are then 53 cents per bushel for barley while farmers are paying 10.6 cents per bushel. This suggests approximately 40 cents per bushel as the Crow subsidy on barley. This raises the price of prairie barley and encourages the feeding of livestock and the utilization of grains outside the region.

(f) Feed Grain Policy

Another federal policy implemented in the mid-1970s was the Domestic Feed Grain Policy. This created a domestic open market within Canada and allowed grain to trade between East and West. This market, however, is not open as it cannot be cleared. Whenever a small glut of barley develops in western Canada, the depressed western price is spread across Canada. In addition, when delivery quotas are open, the prairie region may run short of feed supplies and prices can rise dramatically. A corn-competitive price is in place to ensure that western supplies will always be available to eastern users at prices competitive with corn. This same assurance, however, is not provided to western users because the mechanism for deducting actual savings in the cost of moving grain is not credited to prairie feed users. The result has been a volatile set of feed grain prices on an annual basis within western Canada since the policy was put in place.[49]

The feed grain policy, for a period in the mid-1970s, also provided a reserve stock of feed grain in the Canadian system. This reserve stock was located at Thunder Bay and later in British Columbia and the eastern provinces. Storage costs for this reserve were paid by the Livestock Feed Board, thereby increasing returns to western grain producers who were exporting their supplies. This federal storage payment only applied to CWB grain leaving the prairies. The reserve stock program has now been terminated.

A domestic quota for delivery to the non-board feed market was

---

[49] Keith Hayward, " Feed Grain Price Variability in Canadian and U.S. Markets."

added in 1979. One result of a quota is that a farmer is not able to deliver grain at the time he wishes. One of the consequences of this might be that the feed grain market is more easily inverted. In the U.S., for example, under an inverted market condition, it is logical for a producer to sell his physical stock and buy deferred month futures. This tends to lower the current market price and raise the price of more distant futures. With a quota system, a producer is unable to sell the physical stocks because of the quota and therefore is unable to correct the market.

In Canada, when the reserve stock was in place and, currently, with our corn-competitive formula, there is little incentive for eastern users to forward-buy their future supplies of grain. A price ceiling is provided through the corn formula, and formerly supplies were guaranteed through the reserve stock provision. The result is less buying pressure in the deferred months and inverted markets.

The consequence of an inverted market is that buyers who are east of Thunder Bay can be very selective in terms of placing deferred hedges and only buy when market prices in deferred months are substantially less than full carrying charges. These benefits only accrue to eastern users since a western feed user cannot effectively place a hedge on a deferred month. For him, no mechanisms exist to swap stocks in order to utilize the grain on which he takes delivery through his hedges.[50]

---

[50] It is recognized that a barley futures market has been established in Alberta with delivery points at Edmonton, Calgary and Lethbridge (February 1983), and although trading is very thin, it is still too early to assess its performance.

(g) CWB Quota System

The quota system discouraged increased production because it rewarded acreage in summerfallow. The quota system may also have influenced the allocation of acres among crops. For example, consider the percentage of acres which is seeded to malting barley despite the relatively few producers who receive "malting" grade for their barley and despite the fact that higher yields can be obtained in many areas through utilizing feed barleys. Producers forego this higher yield in return for the possibility of major gains through quota which allow the shipment of a carload of malting barley on the assignment of 60 acres.

Another example of the impact of quota may have been the rapid rise in the acreage which was planted to utility wheats during the period when the wheat board offered lucrative utility wheat quotas. Similarly, the expansion with respect to winter wheat and soft wheat in the irrigation areas may be partially due to the more lucrative quota which has been offered in recent years. More recently, the quota system has been modified so that specialty crops are now treated as summerfallow in terms of the bonus acre provision.[51] While this has a positive impact in terms of encouraging more seeded acreage of the six major crops, it is negative with respect to maintaining the west in its current production mix and inhibits the adoption of new crops.

(h) Flat Initial Price

The Canadian Wheat Board offers producers a flat initial price

---

[51] This is the bonus acres which was made effective August 1, 1982.

throughout the crop year. This has been the case for a number of years and this guarantee is appreciated by most producers. This flat price over a crop year, however, does have implications for livestock operators, particularly on mixed farms. The normal price pattern over a crop year is from a low price at the time of harvest to a high price at the end of the crop year. This, in part, reflects the cost of storage and the interest forgone when a sale is postponed until the end of a crop year. In the U.S., a mixed farmer who maintains a stock of grain for insurance and security purposes for his cattle feeding or hog enterprise can often sell grain at a premium at the end of the crop year. This is a logical practice for producers who, on their individual unit, are faced with wide variations in yield due to frost, drought, disease, grasshoppers, and other natural phenomena. Under the Canadian system, a producer who maintains a stock of grain in order to add stability to his livestock unit receives the same price in July as a producer delivering off the combine in September.[52] This creates a disincentive for livestock feeding in the West and could easily be adjusted by having a rising initial price throughout the crop year.[53] The U.S. loan program encourages a partial carrying charge market for grains during a crop year.

---

[51] This is the bonus acres which was made effective August 1, 1982.

[52] There can be an advantage to a producer to carry grain to the end of the crop year and deliver it in one year and sell it on August 1 of the next crop year to achieve a higher initial price (or possibly an interim payment or higher final payment).

[53] Indeed, this was suggested as far back as 1956 by the Royal Commission on Agriculture and Rural Life, Agricultural Markets and Prices, Repot 8, (Ottawa: 1935), pp. 102-103.

(i) CWB Port-Averaging Policy

The Canadian Wheat Board pricing policy also influences livestock production on a sub-regional basis within the prairies. CWB pricing policy hurts Saskatchewan relative to Alberta in terms of livestock production by using a pricing pool system based on the average realized price at Thunder Bay and Vancouver. Thunder Bay grain prices are typically substantially below Vancouver prices. The averaging of these prices provides a benefit to Saskatchewan and Manitoba grain farmers at the expense of Alberta grain farmers.

Vancouver is at a premium price because it is on salt water, whereas Thunder Bay is still nearly two thousand miles from salt water, and grain must be stored, handled and financed while it is moving through the inland system. The cost of lake freight is considerably higher going through the eastern ports. The rail cost from the Saskatchewan-Alberta border to Thunder Bay may be lower than to Vancouver, since the Vancouver route is a high-cost mountain route, but this is not reflected in current transportation rates. If prices were backed off from a separate pool at Vancouver versus Thunder Bay, prices would be higher in the western region than in the eastern region of the prairies. Table 39 provides CWB asking prices for wheat by port on October 1 and April 1 in recent years.

A price break equal to the price spread between the ports, say 70 cents per bushel, could not exist at the Saskatchewan-Alberta border since producers would begin shipping more grain through Vancouver. Consequently, the port would become more congested with higher demurrage and there would be a greater pressure for the upgrading of the railroad beds in the western region. The maximum price difference

Table 39: Canadian Wheat Board Export Asking Prices—Port Price Comparisons for No. 1 CW 13.5% Protein Wheat

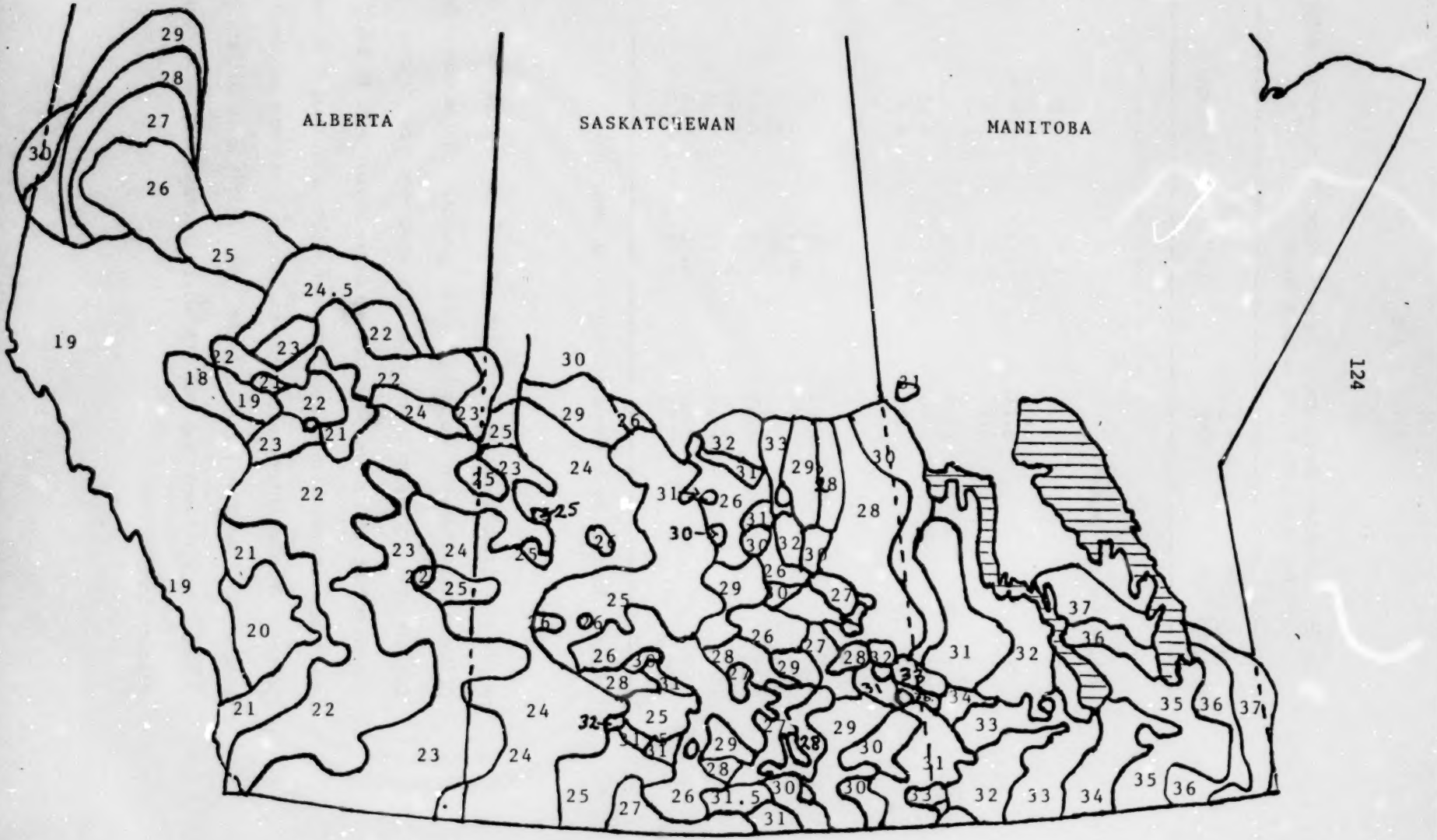
Date and Year	Thunder Bay	Pacific	Atlantic	St. Lawrence
			$/bu.	
April 1 (or day before)				
1976	4.26	4.75	4.63	4.55
1977	3.51	3.75	3.92	3.80
1978	4.13	4.62	4.58	4.46
1979	4.85	5.25	5.33	5.22
1980	5.32	5.89	5.86	5.77
1981	6.33	7.14	6.92	6.84
1982	5.50	6.52	6.14	6.05
1983	5.56	6.36	6.22	6.15
October 1				
1975	5.32	5.81	5.69	5.61
1976	3.21	3.68	3.58	3.51
1977	3.33	3.68	3.76	3.64
1978	4.43	4.90	4.89	4.78
1979	6.08	6.53	6.60	6.48
1980	6.45	7.39	7.01	6.92
1981	5.93	6.56	6.56	6.47
1982	5.32	6.18	5.97	5.89

Source: Stanley Jones Cards, "Daily Price Quotations."

which can exist between points is related to the freight cost differentials between various prairie points. The average Crow freight rate for Alberta grain moving west might be 22 cents per hundredweight, while for Saskatchewan grain moving west it might be 28 cents per hundredweight, depending upon volumes shipped from various points. The statutory rates to west coast ports are outlined in Figure 21. As Crow rate increases, the freight cost differential between Saskatchewan and Alberta will increase for west coast destinations.

Figure 21: Statutory Rate Zones to West Coast Ports

(¢/CWT)



(j) Option to Defer Grain Receipts

Another policy which was introduced during the 1970s was one which allows grain producers within the Canadian Wheat Board region to defer their grain receipts until the next taxation year. This, in effect, allows producers to average their income and postpone their taxation period for one year by foregoing the interest on the money they would have received. It should be recognized that this option is only available in western Canada; eastern producers who realize a bumper corn crop use a more traditional mechanism of buying feeder cattle and selling finished steers in order to defer their income. This deferment policy has two major effects. The first one is that it provides a benefit to the grain producer in terms of lower taxes payable. One approximation of this benefit is that it must be equivalent to the interest forgone by grain producers in order to attain that tax break. If the benefits to a grain producer were not equal to that amount, grain producers could be considered irrational in terms of utilizing the program. The benefits of this program will fluctuate each year depending upon the amount of grain which is deferred each year. An estimate is provided in Table 40. The second effect is indirect: the CWB gets to move grain without paying the financing charges. In effect, the wheat board receives the interest and returns it to the western grain farmer selling export grain.[54] The result is that the real costs of transportation of grain from a prairie point to an export position are partly hidden, since they are

[54] In the early years of the program the elevator companies realized the interest savings while the CWB receives it now via funds deposited in trust.

Table 40: Estimated Interest Forgone by Western Grain Producer through Grain Deferments, 1973-80

	1973	1974	1975	1976	1977	1978	1979	1980
	- - - - - - - - - - - millions of dollars - - - - - - - - - - -							
Interest Forgone	1.04	12.9	11.4	18.8	12.6	11.7	16.0	26.1

Source: S.D. MacArthur, "Implicit Constraints to Livestock in Western Canada", (Department of Agricultural Economics, University of Saskatchewan, Saskatoon, 1983), pp. 14-15.

reduced by the interest savings through deferrments. The benefit of this regulation is on grain which is exported from the region (and CWB sales at corn-competitive prices); this distorts the regional comparative advantage of the West in livestock production.

The use of this deferment policy within the pool also has an effect of transferring income from people in high tax brackets to people in low tax brackets through the giving up of interest by persons in high tax brackets to the pool account. The effect, however, may be to slightly increase the fluctuations in the realized wheat price for the province. During periods of high incomes and good prices, large amounts of grain receipts are deferred, and therefore large savings in financing and carrying costs are realized by the CWB, and next year's payments are likely to be improved. The following year, however, producers are probably in fairly good financial shape having just gone through a lucrative year. On the other hand, when prices are down and returns are poor, deferments are down, so the financing and carrying charges are reduced by a lesser amount. The

result is that, after a bad year, the contribution of deferments to grain prices will be less even though producers may be in greater need for cash and for improved cash flows.

(k) The Market Assistance Program (MAP)

The Market Assistance Program (MAP), though still in the proposal stage, is another program which could have a significant influence on the livestock industry. Under the original MAP proposal, producers were to make a commitment to deliver grain after a given date, say January 1, before they could be allocated quota. This would add greatly to the uncertainty of a mixed farmer in terms of how much grain he should plan to maintain at the end of the crop year to ensure that he had enough feed for his livestock. Typically, producers wait until July and if the crop is looking good, they can draw inventory very low. However, if the producer was hailed out or dried out, he would want to retain some of his grain as feed. Forcing a producer to make a delivery commitment in January would increase the cost and uncertainty for a livestock producer. Moreover, the livestock producer would be unable to commit all of his supplies to market. The result would be that the burden of carrying grain stocks would be borne by livestock producers rather than grain producers. Indeed, a livestock producer may not get his share of the limited prairie transportation capacity, since he is unable to commit all grain not needed for his livestock operation because of yield uncertainties for the coming crop year.

(1) Miscellaneous Interventions and Policy

There are numerous other factors which also influence the region in terms of its choice of enterprise. For example, a student visiting the Swift Current Research Station reported that one of the approximations used to determine the area in which research should be done was the cash receipts generated. Wheat, it was suggested, accounted for 60 percent of the cash receipts in Saskatchewan and therefore a small increase in wheat production would have a large benefit for the total region. It was therefore suggested that approximately 60 percent of the funds might go toward improving wheat in terms of production and weed control. This kind of proposal must raise a question: "How do you ever find something new if you only base research on what you already have?"

The trade rules within a country also have an impact in terms of which enterprises prosper. Many of the eastern industries have enjoyed tariff protection for many years. Wheat, oats, and barley in Canada are protected from outside disruption through the power of discretionary licensing of imports, which is vested with the Canadian Wheat Board. This insulates the Canadian market to some degree. The same, however, does not apply to livestock, for which there are relatively open borders between Canada and the United States. Australia and New Zealand are also allowed to ship dressed meat and meat products into Canada. The Canadian Meat Import Law was only recently enacted. Prior to this law, there was no automatic provision for preventing massive disruptive imports of beef into Canada. Canada was virtually the only unprotected market of any economically developed country. Some might view Canada's Meat Import Law as

providing a relatively small amount of protection since it provides a minimum guaranteed access of 139.2 million pounds, indexed upward by population. But, with a shrinking level of beef consumption, this permits foreign beef producers to get an increasing share of the Canadian market.

It is important to realize that federal subsidies not only differ between livestock and grain but also within the livestock sector. For example, there is a federal hog and beef stabilization program which assures producers that their returns will be at least equal to 90 percent of the market price, indexed upward by changes in the cost of production. It is at the discretion of the minister of agriculture to apply higher levels of support. For industrial milk and industrial cream, the support price was based on 190 percent of the five-year average market price indexed for cost-of-production changes for the dairy year ending March 31, 1976.[55] This support level, expressed as a percentage of market price, has not been published in the annual report of the Agricultural Stabilization Board since the 1975/76 year. Clearly, differential levels of supports are provided within the livestock industry.

Current programs with unintended consequences partly explain the maintenance of this competitive edge for wheat exports. Part of the advantage has been through direct input from the public treasury and/or in the forms of rules and regulations which assisted livestock less than grains. Many of these are federal programs. However, it is

---

[55] See Agricultural Stabilization Board, "Annual Report to the Minister of Agriculture, 1975-1976" (Ottawa: 1976), p. 3.

interesting to note that even on a provincial basis many programs have tended to support grains more than livestock, despite the arguments this province has made with respect to its goals of diversification and intensification. Previous provincial programs such as the Land Bank encouraged the leasing of land and tended to reduce the capital investment which would be applied to improvements on that land. This did not encourage the intensive use of inputs on that land since the rental rate was relatively low, at a crop share of approximately 20 percent. Other programs such as the farm fuel rebate program, which applied primarily to grain production led to a larger total expenditure during its brief period than was spent in the entire FarmStart program during the decade of the 1970s. The current program of low-interest loans of 8 percent on land encourages investment in wheat and other grains, rather than hogs, feedlots and dairy enterprises.[56]

---

[56] This was adjusted in late 1983 with the change from Farmstart to the Agricultural Credit Corporation of Saskatchewan and the adoption of a lower interest rate.

F. FUTURE DIRECTIONS

1. Summary

This paper has analyzed the economics of the cattle industry in Saskatchewan by, first, giving an overview of the industry, along with underlying trends in the numbers and location of cows, feeder calves and fat cattle. Cow numbers have been declining and a large percentage of the calves from this diminishing herd go to Ontario and Alberta to be finished. Almost one third of the fed cattle from Saskatchewan are slaughtered outside of the province.

The cattle industry is placed in an historical perspective in order to identify those forces which have given rise to the industry's current status. The effects of specific policies and institutional changes are highlighted. It is suggested that perhaps policies have been put in place which have made grain production more lucrative than cattle production.

The economics of cow-calf production, cattle feeding and cattle slaughtering are presented along with key characteristics of each. The cow-calf and cattle feeding operations over the past ten years have generally not been profitable. Both are highly influenced by feed grain prices. The future of the cow-calf operation in part depends on the management of public lands—lands which now form the basis of the cow-calf enterprise. Operating a feedlot is a high-risk business and one which requires sophisticated management. Generally, for it to be successful, some of the cattle should be custom fed. In addition, sizable economies of scale are present in cattle feeding, which should be recognized when undertaking a cattle feeding venture.

It is often argued that there was over capacity in slaughtering

facilities during past periods, but it should be recognized that some of this capacity may have been obsolete. Packing capacity constraints may not have been a serious deterrent to the cattle feeding industry in Saskatchewan, although the pricing of beef and the forms in which beef reached the consumer may have been.

Specific policies that have impacted both the cattle and grains industry in Saskatchewan were analyzed. Many of the policies directed at the grains sector had unintentional negative impacts on the beef industry in Saskatchewan. Had livestock received the same policy treatment as did grains, the beef industry would be in a stronger economic position.

2. Policy Options

The results of this analysis indicate that there are opportunities to develop a comprehensive strategy to encourage the beef industry. The strategy must be co-ordinated and must recognize the underlying importance of basic economic variables, i.e., economies of scale, the importance of management in the cattle industry, the changing importance of taxation, the need for more efficient mechanisms for local grain sales, and the important effects of government intervention and the institutions in place. This section outlines some policy options which should be considered by producer groups and the federal and provincial governments.

A single policy or program change will not result in the instantaneous development of the beef industry in Saskatchewan. Rather, policies must be directed specifically at the cow-calf and the feedlot sector. Direct policies are required for the various groups,

including cow-calf operators, feedlot management and potential investors. Policy and program options are incorporated into a suggested time frame (where short term is up to four months, intermediate term is three months to two years and long term is one to ten years).

(a) Short Term

(i) The economies of scale which exist in cattle feeding must be incorporated in developing a feedlot industry. Program design must recognize the specialization of enterprise and management which is now required. Diversified farms may no longer be attainable but a diversified agriculture based on larger specialized production units can provide greater economic opportunities within Saskatchewan.

(ii) Mechanisms to reduce the risk in livestock feeding and the cost of obtaining credit could be initiated. Alberta has operated a Feeder Association Guarantee Program since 1938. This enables members to obtain funds at preferred interest rates. This has been a low-cost program to the government of Alberta and has resulted in lower financing costs for producers.

(iii) One immediate measure to encourage livestock feeding is the development of a cash advance program for livestock producers. This program could complement the existing cow-calf stabilization program by removing the cash flow problem experienced by cow-calf operators who opt for custom feeding. The program could provide loans to producers at the provincial cost of borrowing or at a lower level (even interest-free). The

farmer could get an interest-free loan in the fall on the basis of his calf crop if he planned to feed the animal through to slaughter. The loan would be repaid when the finished animals were sold. The likely result would be more cow-calf operators willing to feed out their animals. Subsidized credit in this sector could initiate more economic activity within the province. Low-interest loans for land purchases, on the other hand, tend to drive up the price of land and do not necessarily increase the economic activity within Saskatchewan.

The provision of funding is very desirable but the government input in terms of a reduced interest rate must be evaluated against the alternative beef industry program measures which also require government funding.

(iv) Saskatchewan, unlike Alberta, Nebraska, Colorado or California, maintains a livestock feeding industry outside of the irrigated area. In view of the potential for silage (barley or corn) in irrigated areas, a demonstration feedlot in an irrigated district should be developed. This pilot feedlot should use top management, incorporate economies of scale, silage feeding and feed processing on site. The project might be developed in co-operation with the PFRA. A strong set of production and financial records must be maintained and the performance must be assessed.

(v) Saskatchewan is a major net exporter of slaughter cattle. Saskatchewan livestock prices are the lowest in Canada since cattle must move outside the province for slaughter. To correct this perennial problem, sufficient packing capacity to slaughter

and market our production must be developed in Saskatchewan. In view of the modern technology of boxed beef, which is used extensively in the U.S., Saskatchewan should seek to expand packing capacity and have more beef processed in this form through existing packers and/or new entrants.

(vi) As the provincial industry expands, spin-offs such as pet food manufacturing could be developed. Dead animals can be used as pet food and bones can be used for many purposes, including bone meal. A nuisance waste could become a profitable by-product.

(b) Intermediate Term

(i) Existing programs and policies should be reviewed to ensure a co-ordinated policy thrust. For example, the current beef stabilization program and FarmStart should be examined to ensure they are having the desired positive economic impact on the cattle feeding industry. Loan levels and eligibility criteria should be developed to be consistent with economies of scale in livestock feeding. The pricing strategy of the beef stabilization board should be consistent with the long-run development of the cattle industry in Saskatchewan.

(ii) A major extension effort in production and financial management should be initiated for cow-calf and feedlot managers in Saskatchewan.

(iii) Cow-calf Sector—Management

— Improved management practices in the cow-calf sector should be encouraged. The following list provides some selected examples:

- □Have all bulls used in community pastures R.O.P. tested and specify a minimum level of performance for each breed. This could serve to rapidly upgrade the quality of the Saskatchewan herd.
- □Expand semen testing to include all bulls used in community or PFRA pastures.
- □All cows should be pregnancy tested prior to leaving the community pastures (at least on a pilot basis).
- □Efforts should be made to improve the productivity of native and tame grasslands. Practices such as reseeding grass land and the use of fertilizer should be encouraged.
- □Community pastures are generally managed to facilitate the cow-calf operator. Often yearlings are not allowed to be pastured. Perhaps one or two of the pastures could be used for backgrounding cattle.
- □A pilot project of wintering drylot cows should be established.

— Preconditioning of feeder calves prior to sale should be encouraged.

— Encourage smaller private parcels of grazing land and forage to be utilized as a single unit. Larger allotments of cattle per producer to community pastures should also be considered.

(iv) The Cow-Calf Sector—Risk, Pricing and Information

— Mechanisms to stabilize feed grain prices and availability should be pursued, as these will stabilize and increase feeder cattle prices.

— The government should provide price information on feed (grain and forage) and where it can be obtained. A forage grading system should be developed. A forward-pricing system for hay could also be developed.

(v) Feedlots—Management

— Past provincial governments have encouraged diversified farms rather than a diversified agriculture. Some individual farmers cannot take advantage of economies of scale by diversifying. Since scale economies exist in the feeding of cattle, cattle feeding in feedlots which capture economies of scale should be encouraged.

The scale economies which could be incorporated include on-site feed processing and the economies in utilizing modern feed and silage handling equipment. Feedlot operators should consider the economics of various silage storage and handling facilities since there are considerable differences.

Economies of scale also exist in input purchases, information collection and the development of hedging strategies. Several feedlots might jointly seek to have the government or a single firm provide such a service.

Proper feedlot design is a key element in the handling of livestock and the efficient use of labor. Specialized expertise should be consulted to incorporate animal behavorial traits in feedlot design.

Feedlots should be encouraged to offer grain producers the option of participating in Western Grain Stabilization on barley sales. This enables the grain producer to have the 4

percent federal levy credited to his equity within the fund.

-- Cattle feeding and irrigation complement each other. Silage and/or hay is often a cheaper feed source than barley. Saskatchewan should link its irrigation development to the feedlot industry. The U.S. has good results with feeding cattle byproducts from irrigation--for example, potatoes. These type of crops have a good potential under irrigation. For a successful feeding operation, large supplies of feed must be available within a small radius of the feedlot. Encouraging the use of silage or high-moisture barley can also facilitate a reduction in risk since it ensures that the feed supply will remain in the area. Operators using silage are immune to the rapid feed price rises which can occur at the end of a crop year.

-- Management of feedlots is a complex and high-risk business. In the past, many feedlot owners failed to recognize the high level of financial management required and did not offer salaries comparable to other non-agricultural industries. Experienced managers are required if Saskatchewan is to establish successful pilot projects and successful feedlots. These may have to be attracted away from existing feedlots in Saskatchewan and/or brought in from outside the province. Accurate production and financial records should be maintained and computerized record-keeping systems should be used. Such systems could provide information on the rates of gain, feed efficiency and cost per pound of gain for any lot placed on feed. This would enable individuals wishing to

invest or place their animals on feed to request that the feedlot indicate its historical performance.

— Alternative organizational structures for operating feedlots should be further investigated. A structure which can attract risk capital, incorporate high management skill, develop a dependable feed supply and withstand fluctuations in feed grain prices is required. Legal, accounting, practical producer and farm management expertise should be utilized in reviewing and developing an appropriate structure.

(vi) Feedlots—Risk, Pricing and Information

— Currently, there is no effective hedging or other mechanism to handle risk on feed, cattle or feeders in western Canada. The need to hedge currency and the large basis risk between Canada and U.S. markets make hedging a costly procedure in Canada. In the absence of futures markets, the government should continue to facilitate risk reduction by custom feeding (as encouraged by the beef stabilization plan) and better contracting arrangements for grain. The establishment of a futures market for boxed beef at Montreal should also be investigated.

— The Domestic Feed Grain Policy results in unstable supplies and prices for grains within western Canada. Saskatchewan feed users are unable to place a hedge on the Thunder Bay market and receive delivery and the basis risk may be considerable in a local area. Quotas on barley deliveries also tend to generate an inverted market.

One alternative would be to request the CWB to put in place a reverse switch mechanism. This mechanism would enable a livestock producer to purchase a feed barley contract at Thunder Bay and upon delivery to exchange stocks of his grain at Thunder Bay with wheat board stocks at his local country point. The exchange could be either from existing elevator stocks or through a direct transfer approach. In a direct transfer a feed user would ask a grain producer to have the grain weighed and the grade agreed to (i.e., in an elevator on the scale) and then trucked directly to his farm or feedlot without being dumped in the pit. A small service charge would be paid to the elevator company. The CWB would credit the feed user with the freight, handling, interest and removal of dockage charges relative to the corn-competitive price at Thunder Bay. The grain producer would receive the CWB initial and final payment as the CWB would have an equal volume in a saleable position at Thunder Bay. (The amount exchanged by the livestock producer.)

The Canadian Wheat Board should also be requested to use an increasing initial price over the crop year. The initial price would be higher in June and July than it was in September and October by an amount which reflected a part of the storage and interest costs.

The option suggested in the quota report of 1970, by Boden et al., to allow quota to be transferred between producers each year should be studied further. It appears to have numerous positive attributes. If a crop failure is experienced, the

producer could sell his quota and improve his income. The option to sell quota each year could also encourage some producers to develop their own market for grain through livestock. It could help keep the value of quota from being capitalized into land values.

— The CWB should be requested to service feed users in the West by recognizing them as important customers. Only if the approach fails should the following recommendation be considered.

A system could be designed by which grain is transferred directly between the grain producer and the user (i.e., cattle feeder). A standard contract could be worked out by the Saskatchewan Department of Agriculture to provide for deliveries of grain once every two months to the livestock operators. The Saskatchewan government would pay the grain producer the initial plus CWB final payment. The initial price would rise slightly over the crop year and these sales would be outside quota. The pricing mechanism to the feed user would be the world price at Rotterdam, Chicago and Thunder Bay, backed off by total transfer costs. The provincial government would maintain documentation of sales and develop a pool from which the final payment would be made. The provincial government would have some financial exposure but it should not be a major exposure in most years. This would provide a guaranteed market for a grain producer and a guaranteed source of supply to a livestock operator. The livestock producer would not be required to duplicate the

storage which exists on grain farms. One year's supply would not need to be purchased in October while supplies are abundant and financed for nearly a full year. There is no need to duplicate one year's storage space on specialized livestock units. A co-ordinated flow of grain between the grain producer and user could be established. The grain producer would benefit in terms of freeing up acres on his quota. By doing so, it would enable him to sell his wheat or other grains much earlier in the year and thereby receive cash earlier. Registered feed users would be bonded.

— Saskatchewan producers grow malt barley varieties in anticipation that their barley might sell for malting and yield a higher price and considerable quota advantage. In most years, less than 30 percent of the barley produced is purchased as malting barley. The remainder is used as feed, even though a large part of it is a malting variety. Growing malt varieties, to the extent that it displaces feed varieties because of quota advantages, results in lower total yields and reduced supplies of feed for livestock. One option would be to adjust the existing quota system to enable improved flexibility at the farm level in terms of choice of crops to plant. Each producer might be allocated 10 or 12 bushels per acre of transport space (quota) per acre each year. Farmers would be rational on their own in terms of choosing their high-value products for export. The CWB could still call forward supply according to the mechanism by which they choose to open their quota. Artificial advantages of

malt barley and the high risk for producers of producing wheat of low quality would be reduced.

— Changes should be sought in the Meat Import Law with respect to access to the U.S. market. If this is not done and a more liberal set of regulations for access achieved, the result of expansion in Saskatchewan will be to displace the cattle feeding in other parts of Canada (one would expect central Canada would suffer the major decline).

— The forward planning concept (Rosaasen and Maley), as an alternative to handle risk and improve and stabilize producer income, should be reviewed and assessed. The concept suggests that proper long-run resource allocation is not provided by the open market, because speculators, who are relied on to provide it, do not receive all the benefits of improved resource allocation. A speculator takes all the risk of being wrong but does not receive the benefits of stable throughput in processing plants, stable supplies to consumers or feedlots operating at capacity, if his assessment is correct. The concept is to allow the open market to guide short-run decision-making in terms of supply and demand. The forward-planning mechanism would be put in place to improve producer bargaining power and information by offering a forward price through a public agency before the production process is initiated.

This scheme could improve producer bargaining power and add stability to the industry without the capitalization of any quota rights.

(vii) Tax Measures

— Tax measures must recognize the growing importance of income tax rules in farm decision-making. The growing proportion of provincial tax payable by Saskatchewan farmers as a result of the use of the federal BITC should also be noted. The taxation provision must recognize the need to create investment options for established grain producers or other potential investors which are comparable to the options for real estate in major cities or outside Canada. These investments could generate more activity if made locally than if siphoned off to other parts of the world.

It is recognized that many of the taxation regulations are under federal jurisdiction. One provincial mechanism would be to utilize a provincial tax credit for investment in livestock processing. This investment tax credit could allow a 20 percent provincial tax credit on the purchase price or possibly a 10 percent provincial tax credit per year over two or three years. It would apply to all agricultural processing facilities, such as feedlots, feed mills, and packing plants.

A tax credit should be utilized since it does not reduce the amount of interest paid by an enterprise, as is the case with a direct provincial grant. Interest payments are deductible in calculating federal income tax. A provincial grant or low-interest loan reduces the interest cost that can be deducted in calculating federal tax payable and therefore increases the federal tax bill paid by the farmer receiving the benefits.

A provincial tax credit offers several further advantages. It only applies for one, two or possibly three years, depending upon the provision. In contrast, a low-interest loan might be an ongoing expense for five years, ten years or even longer. A tax credit does not show up as a subsidy or as an increase in government expenditure. Rather, it shows up as a reduced amount of tax collected and a reduced role of government activity in the economy. A tax credit is more flexible since it can be utilized for a period while investment is being encouraged and then be terminated.

-- Breeding animals could be treated as a capital good similar to a tractor. Cows could be depreciated (as they are now in the U.S.) and treated as a capital gain when sold. A tax credit on breeding animals could also be made available, since breeding animals are capital goods. This would be a federal initiative. It should be evaluated carefully since it may adversely affect the Livestock Inventory Provisions.

-- Another tax measure would be a 4 percent provincial tax credit on cattle fed and slaughtered in Saskatchewan. Obviously only Saskatchewan residents could apply for a provincial tax credit. Provisions to carry the tax credit forward for several years should be available. This might be an interim measure to offset current distortions of other federal policies, such as the Crow rate. This would attract investors immediately. It could be considered part of the provincial contribution to an agricultural adjustment package. The tax credit could be phased down to 1 percent by

reducing it one-half of one percent per year over the next seven years.

— A scheme should be developed which allows producers who are currently deferring his grain receipts to finance livestock feeding with those same funds. An option could be provided for the producer to take his grain payment immediately and invest it in a "feeder cattle pool." This pool might provide an interest rate of 5 percent to the producer. Alternatively, a producer might purchase cattle to custom feed to achieve the tax credit on fed steers. If he chooses to place the money in the "feeder cattle pool," it could be made to finance feeder cattle to be fed in Saskatchewan-based feedlots. Subsidizing the interest rate on feeder cattle could not be capitalized into a fixed asset like land, as it would tend to improve returns to feeder cattle and those holding breeding stock. The individual grain producer would then receive part of his interest directly, rather than indirectly as a very small part of the CWB final payment.

(c) Long Term

(i) The most important long-term recommendation is to follow through on a development strategy if it is initiated. One individual and a small staff must be in place to monitor progress, make adjustments and overcome snags which will undoubtedly appear. Often a thrust begins with much fanfare only to die a slow death. The group responsible must be open to suggestions and criticisms from livestock producers and others. Often the new

initiatives of a government become the "pet programs" of politicians and administrators and are therefore deemed to be beyond criticism of department staff. An outside review should be conducted every three years or, alternatively, major program and regulatory elements should be in sunset legislation. The sunset legislation would be cancelled after six years unless extended on a four-year basis. Notice of intent to cancel would be at least four years, to avoid the problem of rapid adjustments in major regulations, as was the case in the MacEachen budget of 1981.

(ii) The education and extension effort in terms of technical and financial management must be developed in support of the industry. Resources will be required to develop additional skilled feedlot managers as well as agricultural economists specializing in livestock management, tax management and livestock marketing. The number of highly trained (Ph.D. level) economists specializing in livestock marketing is very small relative to the large pool of highly trained expertise available in the grain marketing sector.

(iii) The development and adoption of new feed crops or soil-enhancing crops for Saskatchewan should be encouraged. This could take two forms. First, there is the introduction of new species. For example, the test results of a split pea at Swift Current brought in from Germany had a reported yield of approximately 1.75 tons per acre and added about 160 lbs. of actual N per acre. The seed, however, will not be utilized in Canada since the company maintains exclusive rights. One mechanism to encourage its adoption would be for the government to offer a

direct incentive to the company to release the seed on the basis of a payment per acre seeded within the province, i.e., 20 cents per acre. Then, for example, should 1,000,000 acres be seeded in the province a payment of $200,000 would be required. This would be considered a small sum to pay provincially for crops which could be adaptable to a large number of acres. The payment might be made over a five-year basis beginning, at say, 40 cents per year after year one declining to 10 cents per year in year five, at which time the payments would terminate. If a company believed it had a high-quality seed stock, it might be willing to introduce it into Saskatchewan.

Secondly, the provincial government should encourage research on feed crops for Saskatchewan. Many man-years have been spent on malting barley research, yet most of the barley is utilized as feed. Feed barley, corn, and the use of byproducts as feed should be developed as an important area of plant and plant utilization research. Silage research, the most suitable harvesting methods and the best barley varieties to use should also be part of the research thrust.

(iv) Finally, the future of the livestock industry should be considered in light of the contribution which livestock production can make to the long-run maintenance of the soil resource. Saskatchewan is facing problems of soil salinity and soil erosion by wind and water. Reduced summerfallow, increased use of legumes, barley silage, longer rotations and livestock manure can all make a contribution to maintaining the soil resource. The real social costs of maintaining a wheat economy

in terms of soil deterioration and the vulnerable position of the provincial economy are not considered in the private decision to choose a wheat enterprise.

REFERENCES

Agricultural Stabilization Board. "Annual Report to the Minister of Agriculture." Ottawa, various annual issues.

Agriculture canada. Livestock Market Review. Ottawa: various annual issues.

Alberta Agriculture. Agriculture Statistics Yearbook, 1981. Edmonton: 1982.

Alberta Agriculture. Concensus Cost and Returns Studies. Edmonton: various issues.

[Anonymous]. Ranching in the Canadian Northwest. N.p.: 1903.

Bronson, H.E. "The Developing Structure of the Saskatchewan Meat Packing Industry." Ph.D. thesis, University of Saskatchewan, Saskatoon, 1965.

Burton, G.L. "An Analysis of Probable Effects of the Recent Revision in the Prices of Coarse Grains on the Production of Hogs and Grain." Memorandum, University of Saskatchewan, 1947.

Canada. Department of National Revenue. Taxation Statistics. Ottawa: Queen's Printer, various annual issues.

Canada. Dominion Bureau of Statistics. Livestock and Animal Products Statistics. Ottawa: King's Printer, 1927.

Carter, C., and Schmitz, A. "The Economics and Location of Cattle Feeding: Alberta vs. Saskatchewan." Study prepared for Agriculture Canada, August 1983.

Dominion Bureau of Statistics. Livestock and Animal Products Statistics. Ottawa: King's Printer, 1927.

D. Wm. Carr & Associates Ltd. "Market Impact and Potential of a Specific Type of Meat Packing Enterprise in Saskatchewan." Report prepared for the Saskatchewan Department of Industry and Commerce, February 1975.

D. Wm. Carr & Associates Ltd. Canada's Meat Packing Industry in Transition. Regina: 1976.

Furtan, W.H., and Lee, G.E. "Economic Development of the Saskatchewan Wheat Economy." Canadian Journal of Agricultural Economics 25(November 1977): 15-28.

[Hall Commission]. Report of the Grain Handling and Transportation Commission. Emmett Hall, chairman. Ottawa: 1977.

Hayward, Keith. "Feed Grain Price Variability in Canadian and U.S. Markets." Department of Agricultural Economics, University of Saskatchewan, Saskatoon, April 1982.

MacArthur, S.D. "Implicit Constraints to Livestock in Western Canada." Department of Agricultural Economics, University of Saskatchewan, Saskatoon, April, 1983.

Morris, J.B., and Zilm, J.H. An Examination of the Saskatchewan Livestock-Meat Packing Segment. Regina: Saskatchewan Department of Agriculture, 1972.

Nicholson, Raymond C. Livestock and Meat Farmers. Saskatoon: University of Saskatchewan, 1965.

Professional Construction Managers, Inc. "Beef Slaughter and Processing Facility for Intercontinental Packers Limited, Saskatchewan." Engineering report, Sunnyvale, California, February 1978.

Report of the Commission of Inquiry into the Marketing of Beef and Veal. Ottawa: Supply and Services Canada, 1976.

Report of the Minister of Agriculture for the Dominion of Canada: 1925. Ottawa: King's Printer, 1926.

Report of the Grain Handling and Transportation Commission. [See Hall Commission].

Report of the Royal Commission of Inquiry into Farming Conditions. Regina: King's Printer, 1921.

Report of the Royal Commission on Price Spreads. Ottawa: King's Printer, 1935.

Rosaasen, K.A., and Brooks, H.G. "A Study of the Canadian Cattle-Calves Information System." Prepared for Statistics Canada, September 1981.

Rosaasen, K.A., and Lee, J.M. "Pride, Prejudice and Politics: A Century of the Livestock and Red Meats Industry in Saskatchewan: 1876-1976." Working paper no. 1034, Department of Agricultural Economics, University of Saskatchewan, Saskatoon, March 1983.

Rosaasen, K.A., and Doug Maley. "A Forward Planning Mechanism to Improve Resource Allocation and Stability in Agriculture" prepared for the Deputy Ministers' Committee on Supply Management and Quota Values, February 1978.

Royal Commission on Agriculture and Rural Life. Agricultural Markets and Prices. Report no. 8. Regina: Queen's Printer, 1956.

Saskatchewan Agriculture. Agricultural Statistics. Regina: various annual issues.

Saskatchewan Agriculture. Saskatchewan Cattle Marketing Report. Regina: various monthly issues.

Saskatchewan Livestock Commission. Interim Report. Regina: King's Printer, 1917.

Saskatchewan Rural Land Assessment Manual. Regina: Department of Municipal Affairs, 1979.

Senate Standing Committee on Agriculture. "Industry in Turmoil: Report on the Long Term Stabilization of the Beef Industry in Canada." Herbert O. Sparrow, chairman. Background paper, June 1982.

The Sibbald Group. "A Beef Feeding Plan for Saskatchewan: Organizational, Financial, and Technical Aspects." Report prepared for Saskatchewan Agriculture, Regina, February 1979.

Simpson, J.R., and Farris, D.E. The World Beef Business. Ames, Iowa: Iowa State University Press, 1982.

Smith, Lyle. Economics of Feeding Cattle in South Central & Southern Alberta. Edmonton: Alberta Agriculture, 1980.

Spector, David. Animal Husbandry in the Canadian Prairie West, 1880-1925. Ottawa: Canada Department of Indian and Northern Affairs, 1978.

Statistics Canada. Farm Cash Receipts. Catalogue No. 21-001. Ottawa: various issues.

Statistics Canada. Livestock and Animal Product Statistics. Catalogue No. 23-202. Ottawa: various issues.

Statistics Canada. 1981 Census of Canada, Agriculture, Saskatchewan. Catalogue No. 96-909. Ottawa: 1982.

Statistics Canada. 1976 Census of Canada, Agriculture, Saskatchewan. Catalogue No. 96-808. Ottawa: 1977.

United States Department of Agriculture. Agricultural Statistics, 1977. Washington, D.C.: 1978.

United States Department of Agriculture. Livestock and Meat Statistics. Washington, D.C.: various issues.

Western Canadian Agriculture to 1990. Canada West Foundation Specal Task Force Report. W.H. Horner, chairman. Calgary: Canada West Foundation, 1980.

Appendix A1: Livestock Slaughtered at Canadian Inspected Establishments by Fiscal Years, 1912-13 to 1919-20.

CATTLE, 1912-13.

Month	Ontario	Quebec	Manitoba	Saskatchewan Alberta and British Columbia	Maritime and Prince Edward Island	Total
April, 1912	15,530	9,630	2,726	1,341	-	29,226
May	16,179	14,117	4,035	1,696	-	36,029
June	12,151	12,647	3,798	1,981	-	30,577
July	10,889	13,522	5,679	3,601	-	34,091
August	12,383	13,369	6,903	3,935	-	36,590
September	10,959	14,326	8,336	4,417	3	38,043
October	14,823	19,540	13,127	9,846	179	57,315
November	21,308	20,580	10,213	8,050	804	60,635
December	16,167	14,880	7,440	5,663	175	44,325
January 1913	14,851	10,345	3,083	2,793	32	32,362
February	13,198	8,387	3,456	2,820	93	28,954
March	12,263	7,204	3,289	3,414	53	25,223
Total	172,408	158,967	70,085	45,559	1,061	451,390
"Condemned" of total	1,392	1,758	411	218	1	3,780

1913-14.

April, 1913	19,873	15,383	2,798	4,197	78	42,329
May	18,534	17,976	2,945	4,524	68	44,347
June	15,956	16,939	2,746	4,231	33	39,905
July	16,008	17,692	4,170	5,152	4	43,026
August	14,348	16,145	4,439	5,118	-	40,050
September	18,583	23,633	7,051	5,858	14	55,139
October	27,330	32,019	14,017	10,514	376	84,256
November	24,842	24,306	7,938	11,482	901	69,467
December	15,607	13,091	4,159	8,811	388	42,056
January, 1914	11,523	7,519	2,944	4,181	85	26,242
February	7,863	6,673	1,507	3,080	94	19,217
March	9,853	10,814	3,062	3,209	22	25,000
Total	200,620	202,190	58,774	70,357	2,073	531,994
"Condemned" of total	1,654	4,837	392	291	3	7,177

	1914-15			1915-16	
	Killed	Condemned		Killed	Condemned
April, 1914	40,189	1,493	April, 1915	40,958	2,222
May	41,685	671	May	40,829	1,228
June	39,734	593	June	38,800	1,864
July	37,208	375	July	37,520	705
August	45,974	511	August	42,372	413
September	49,961	430	September	49,281	560
October	82,896	843	October	84,809	788
November	74,272	885	November	80,127	1,079
December	57,806	788	December	47,626	578
January, 1915	39,874	401	January, 1916	31,994	350
February	24,963	351	February	31,650	488
March	33,863	1,177	March	39,006	1,072
Total	530,425	8,018	Total	542,154	10,363

Appendix A1, continued:

CATTLE, 1916-17.

Month	Ontario	Quebec	Manitoba	Saskatchewan, Alberta and British Columbia	Maritime and Prince Edward Island	Total
April, 1916	21,468	12,878	2,828	3,792	53	41,017
May	27,619	19,377	3,269	4,487	12	54,764
June	22,957	12,371	3,912	5,075	-	44,315
July	18,397	10,340	4,256	6,228	-	39,221
August	24,437	15,052	6,673	7,205	-	53,367
September	26,847	17,279	8,523	10,212	166	63,027
October	31,961	21,650	14,332	17,195	384	85,522
November	40,278	27,597	13,452	15,856	356	97,537
December	26,852	21,812	8,407	6,589	729	64,720
January, 1917	23,030	11,453	3,013	4,633	253	42,382
February	15,728	7,958	2,035	3,272	308	29,301
March	18,814	9,196	2,495	3,453	228	34,186
Total	298,414	188,782	71,185	89,997	2,491	648,839
"Condemned" of total	2,987	5,822	813	459	7	10,888

1917-18.

April, 1917	21,957	14,144	2,300	3,584	80	42,265
May	25,692	16,271	3,438	4,253	210	49,864
June	21,178	12,621	3,421	4,537	48	41,825
July	22,836	12,982	4,801	3,129	1	43,639
August	28,947	13,878	14,056	11,845	3	68,729
September	32,031	18,183	14,962	17,423	142	82,721
October	42,649	25,960	22,324	24,134	481	115,728
November	42,434	23,408	20,264	22,349	830	109,305
December	27,088	12,770	10,479	13,684	732	64,753
January, 1918	25,081	8,683	3,175	5,160	559	42,658
February	20,484	8,968	3,478	3,475	323	32,728
March	24,652	11,287	3,439	3,297	197	42,872
Total killed	335,029	178,155	105,425	118,890	3,586	729,083
"Condemned" of total	3,170	3,235	833	562	15	7,913

	1918-19			1919-20	
	Killed	Condemned		Killed	Condemned
April, 1918	56,732	820	April, 1919	68,238	1,362
May	64,772	692	May	87,672	1,017
June	48,296	392	June	46,421	631
July	62,524	596	July	79,405	1,021
August	82,621	537	August	98,574	1,956
September	98,385	680	September	98,099	-
October	119,164	1,026	October	134,106	-
November	119,968	1,397	November	139,614	-
December	111,175	1,350	December	100,750	-
January, 1919	47,937	740	January, 1920	47,918	-
February	32,235	426	February	33,103	-
March	43,964	922	March	56,741	-
Total	887,773	9,578	Total	960,639	-

Source: Reproduced from Dominion Bureau of Statistics, pp. 42-43.

Appendix A2: Numbers of Farm Livestock in Canada, by Province and Year

MILCH COWS.

—	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918
Canada	2,849,308	2,853,851	2,894,179	2,804,486	2,740,434	2,673,284	2,666,846	2,633,433	2,303,383	2,643,600
Prince Edward Island	53,913	55,365	52,198	49,415	48,365	47,317	47,043	46,032	46,032	41,429
Nova Scotia	147,663	148,948	129,302	130,184	130,468	128,237	128,814	130,141	131,442	157,829
New Brunswick	122,577	122,136	105,533	110,507	106,904	102,713	101,863	100,221	100,221	120,123
Quebec	836,579	856,151	753,134	755,770	761,816	733,476	720,420	630,803	911,023	1,163,865
Ontario	1,360,573	1,343,650	1,032,979	1,033,392	1,141,071	1,085,843	1,077,905	1,082,118	1,082,118	1,103,039
Manitoba	167,447	164,766	155,337	148,471	132,702	150,506	157,494	196,268	202,177	225,658
Saskatchewan	124,186	128,653	181,146	184,896	184,843	201,824	211,884	222,185	254,403	253,989
Alberta	116,371	124,470	147,667	157,922	166,376	179,068	183,974	227,224	225,861	238,703
British Columbia	.....	.....	33,953	34,011	33,599	33,702	37,944	38,318	49,005	50,965

OTHER CATTLE.

Canada	4,384,779	4,250,963	3,939,257	3,827,373	3,915,687	3,363,631	3,399,155	3,780,718	4,718,687	6,307,257
Prince Edward Island	66,013	67,648	66,257	64,666	64,261	61,043	58,503	57,260	64,970	69,093
Nova Scotia	165,507	160,188	156,123	156,051	153,726	146,368	144,458	140,673	135,046	249,422
New Brunswick	113,856	110,389	113,610	113,136	107,861	99,236	96,437	92,723	89,456	168,674
Quebec	627,868	600,377	697,869	655,906	693,540	625,858	612,500	535,693	936,010	1,345,819
Ontario	1,771,433	1,629,364	1,471,694	1,380,890	1,460,015	970,445	933,806	901,934	865,847	1,770,663
Manitoba	233,752	314,815	279,776	267,130	256,926	251,096	246,603	257,670	257,670	321,340
Saskatchewan	301,788	431,164	452,466	461,244	468,258	474,436	543,609	680,308	836,667	978,343
Alberta	810,547	826,837	592,163	587,367	610,917	633,032	660,009	882,766	1,209,433	1,342,880
British Columbia	.....	.....	105,230	101,021	100,163	99,091	100,436	103,101	101,338	165,165

SWINE.

Canada	3,812,500	3,753,964	3,610,439	3,477,310	3,448,328	3,434,381	3,111,900	3,474,840	3,619,382	4,289,642
Prince Edward Island	47,853	48,823	46,377	50,463	43,763	41,718	40,792	38,300	35,234	40,814
Nova Scotia	70,508	69,958	63,322	61,194	56,590	53,895	53,402	51,928	49,850	68,238
New Brunswick	94,140	91,250	87,391	85,905	77,014	73,325	73,533	70,583	69,369	79,814
Quebec	670,043	651,415	793,346	747,234	861,769	834,569	832,729	831,303	712,087	997,255
Ontario	1,866,365	1,891,058	1,864,165	1,693,594	1,653,440	1,553,834	1,468,573	1,404,618	1,236,964	1,656,386
Manitoba	172,374	142,312	158,-16	163,370	184,745	186,270	163,308	205,866	175,013	284,596
Saskatchewan	131,757	125,788	296,293	344,398	386,784	454,703	411,324	530,737	673,936	821,240
Alberta	130,270	163,560	237,510	278,747	350,692	397,123	299,696	603,454	730,227	801,534
British Columbia	.....	.....	33,804	32,485	34,541	30,031	38,543	37,839	37,888	39,805

Source: Reproduced from Dominion Bureau of Statistics, p. 43